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Draft update of the Belgian National Energy and Climate Plan

2021-2030 (NECP 2023)

Version of the Conciliation Committee of 22 November 2023

Disclaimer: Only the common parts of the NEKP were validated by the four entities. The parts specific to the entities, namely the texts under the heading 'Federal State', 'Flemish Region', 'Walloon Region' and 'Brussels-Capital Region' are the responsibility of those entities.

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1. OVERVIEW AND PROCESS FOR DRAWING UP THE PLAN

1.1. Executive Summary

1. *Political, economic, environmental, and social context of the plan*

Since Russia's invasion of Ukraine on 24 February 2022, the global energy landscape has changed dramatically. We are living in the biggest energy crisis in the past 50 years, as the global economy is barely recovering from the pandemic.

This crisis comes on top of the global¹ and Belgian challenges, first and foremost the urgent climate challenge and biodiversity loss, with their own implications for our economy, health and society at large.

The effects of current and future climate change are becoming increasingly evident, and Belgium is no exception. Extreme weather events can have negative consequences for humans, biodiversity and the economy.

This change is illustrated, for example, by the exceptionally intense and sustained rains in July 2021, which resulted in a heavy human impact – 39 deaths, 100 000 direct or indirect casualties, 48 000 buildings damaged – and considerable economic damage (EUR 2,8 billion) due to the subsequent floods.² In addition, Belgium is also facing increasingly frequent and intense prolonged droughts, such as in 2011 and from 2017 to 2022 (except in 2021). In Flanders, it appears that on average 3 % of the area is subject to water stress every year. Nevertheless, projections show that this figure could rise to 17 % by 2050, and even to 27 % by 2100³. A similar development also threatens the agricultural area in Flanders: almost 2 % of the agricultural area is subject to significant water stress in a typical year in the current climate, in 2050 this proportion could rise to 9 % (and 18 % in 2100). This trend also exists in the Walloon Region⁴.

These examples show that, despite significant mitigation efforts, adaptation must also play an increasing role in strengthening the resilience of Belgian society and ecosystems.

Accelerating the transition to climate neutrality

Due to the urgency of the climate challenge, the increased climate ambition at European level and its translation into the various proposals contained in the Fit for 55 legislative package published by the European Commission in July 2021⁵, the original NEKP of 2019 is updated with a higher level of ambition.

Federal State

The Government Agreement⁶ identifies a series of new actions in various areas (climate and energy, mobility, taxation, recovery and transition, governance, etc.) in line with the objectives of the Paris Agreement, the European Green Deal and the EU's new adaptation strategy.

Flemish Region

In the Belgian context, European objectives still need to be shared between the different entities in the context of

¹See IPBES and IPCC reports for more information.

² Floods July 2021. State of play and outlook, Public Service Wallonie, July 04, 2022.

<https://www.wallonie.be/fr/actualites/inondations-de-juillet-2021-bilan-et-perspectives>

³ Drought, Flemish Environment Society, 2023. <https://klimaat.vmm.be/themas/droogte>

⁴ Publication of the Habitats of Community Interest of Wallonia, Department for the Study of Nature and Agriculture, 2021.

<http://biodiversite.wallonie.be/fr/les-habitats-d-interet-communautaire.html?IDC=6399>

⁵ Delivering European Green Deal: Publication of legislative proposals FF55 by the European Commission on 21 July 2021: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/delivering-european-green-deal_en

⁶ Coalition Agreement, Federal Government, 30 September 2020:

https://www.belgium.be/sites/default/files/accord_de_gouvernement_2020.pdf

burden-sharing negotiations. However, it is clear that European reforms will have a major impact on the Flemish energy and climate policy framework. For example, the reform of the existing ETS, its extension to shipping, the creation of the new BRT ETS and the launch of the CBAM will require significant implementation work. Flanders, taking into account the intra division of competences as well as the maximum accomplishment of Flemish competences, will hereby assume its responsibility to ensure a smooth start of these initiatives.

On the other hand, the Flemish Government has not awaited the conclusion of the European negotiations before taking various decisions. For example, in November 2021, in light of the increased European ambition, the Flemish Government raised the ESR climate target to a 40 % reduction by 2030, compared to 2005 (recalculated).

In preparing this plan to update the energy and climate plan for Flanders, maximum account was taken of the elements finally approved in the European Fit for 55 package. Among other things, the projections of this plan already take into account the introduction of the Emissions Trading System for Buildings and Transport (ETS BRT) from 2027 or 2028, although it is estimated that this will only lead to limited additional emission reductions by 2030 due to the low short-term price elasticity in these sectors, as indicated in a study by Climact and the Öko Institute (2021) commissioned by the Flemish Energy and Climate Agency.⁷

As the political agreement between the European Parliament and the European Council on the revision of the Energy Efficiency Directive was only reached on 10 March, and the agreement on the revision of the Renewable Energy Directive only on 30 March, the new provisions of these directives have not yet been included in this draft plan. These will be included in the final VEKP update in 2024.

Flanders continues to closely monitor European energy and climate developments. For example, negotiations on several files are in the final phase. This concerns in particular the Renewable Energy Directive. Negotiations are also ongoing on the revision of the Energy Performance of Buildings Directive, the Methane Regulation, the F-Gas Regulation, the Carbon Removal Regulation, the revision of the Electricity Market Directive and the tightening of CO₂ standards for the transport of persons and goods. Once completed, these files will also contribute to reducing emissions in Flanders. Flanders will therefore continue to advocate for an ambitious European framework of standards and standards during these negotiations, with like-minded European partners and in the context of the upcoming Belgian Presidency of the Council of the EU, as this is crucial to achieving the VEKP objectives.

Region Walloon

“ The climate emergency and environmental degradation are such that society as a whole is called upon to fundamentally change its behaviour. Wallonia is part of the necessary and desirable move towards the low-carbon society. It aims to achieve carbon neutrality by 2050 at the latest, with an intermediate step to reduce greenhouse gas (GHG) emissions by 55 % compared to 1990 by 2030.”⁸

This Walloon contribution to the National Energy Climate Plan (NECP) aims to bring about the changes needed today to develop new **prosperity** based on a decarbonised economy that serves a sustainable quality of life for all. It strongly commits Wallonia to a process of transformation, involving all parts of society and the economy, in order to reduce GHG emissions, develop renewable energies, improve its energy efficiency, reduce emissions of other air pollutants and increase resilience to the present and future impacts of climate change in Wallonia.

The battle against **climate change** is structured around **mitigation measures – reducing** the causes, aiming at limiting the temperature increase to a maximum of 1.5 °C and thus limiting the most dramatic consequences, in Belgium and elsewhere, in particular by reducing fossil fuel emissions; but also **adaptation measures – to protect**

⁷<https://www.vlaanderen.be/veka/studies/studie-over-de-uitbreiding-van-emissiehandel-naar-gebouwen-en-transport-2021>

⁸Wallonne Regional Policy Declaration 2019-2024 (DPR), p. 3

people, prepare territories and improve the resilience of vulnerable sectors to the already visible impacts of climate change and future ones. There are many synergies in the actions to be undertaken in these two dimensions and improvements on the one hand increase the chances of achieving objectives in the other.

To these two fundamental dimensions of climate action, the Walloon Region adds to the reduction of air pollutants and the improvement of **air quality**, which it addresses jointly in its Air Climate Energy Plan (PACE), which is the source of this document. The PACE proposes a systemic and integrated vision of climate and energy and air policies so as to avoid antagonistic or counterproductive measures.

Brussels Capital Region

The way the world lives in an increasingly urban context offers opportunities for better resource management. The urban context provides the solutions but also the challenges needed to respond to climate change. The city is a real energy consumption concentration, yet it offers an exciting ground for reflection. Moreover, it is already today that one in two people live in this context. By 2050, almost 3 out of 4 people will live in cities.

Like the rest of the world, the CBR itself faces a series of major challenges (pollution, biodiversity conservation, social cohesion, etc.), to which its contribution to the NECP (consisting of the climate and energy parts of its air-climate-energy plan adopted on 27/04/2023 by the Brussels Government) seeks to address:

- The challenges of mitigation, adaptation and building resilience to climate change;
- The challenge of the structural increase in energy prices;
- The challenge of joining and contributing to all Brussels and Brussels.

At the time of the adoption of the Brussels contribution to the NECP at the end of 2019, it had been assessed that the measures led to a 40.1 % reduction in regional direct GHG emissions by 2030, compared to 2005 levels.

The measures provided for in this update will therefore aim to go beyond that level, without calling into question the actions contained in the regional contribution to the NECP, which constitute the starting point in the context of a strengthened Brussels climate policy. In order to remain in line with its commitments, the Brussels Government is pursuing the objective of reducing direct regional emissions by at least 47 % by 2030 compared to 2005.

The Climate Order of 17 June 2021⁹, a genuine Brussels Climate Law, built regional climate governance. It enshrines the 2030 targets in law, on a path compatible with climate neutrality in 2050, a minimum reduction of 90 % (compared to 2005).

Just transition and social context

Climate efforts must go hand in hand with social cohesion, democratic participation and a sustainable and competitive economy. This implies that the focus of the plan is on a fair transition and ensuring the long-term competitiveness of businesses.

The principle of fair transition and leaving no one behind is an important cross-cutting principle in politics: whether to deal with the effects of climate change, to get involved in the transition or to retrain into jobs for the future, we ensure that everyone is included, including the most vulnerable groups, and that nobody is disproportionately affected.

⁹ https://environnement.brussels/sites/default/files/user_files/20210625_ordonnanceclimat_mb_0.pdf

The National Recovery and Resilience Plan is the result of inter-federal coordination work at the end of 2020 and resulted in its submission on 30 April 2021. The National Recovery and Resilience Plan (NRRP) received the green light from the European Commission on 23 June 2021 and the ECOFIN Council on 13 July 2021.

This initial plan has two main components: strategic investments and structural reforms, based on six thematic 'axes', worth EUR 5,9 billion. As such, the plan includes 105 investments and 35 reforms. 27 % of the plan supports the digital transition and 50 % of the total budget of the reform and investment plan contributes to the climate transition.

The plan includes key measures to strengthen Belgium's **economic and social resilience** and to help it better prepare for the challenges and opportunities of the green and digital transition.

The plan foresees investments in the following areas:

- Employment support measures, through more personalised support to jobseekers, the introduction of a training account and investment in lifelong learning and digital training.
- Improving the business environment by shortening the time taken to obtain building and environmental permits
- Investment in research and development focused on the green and digital transition: artificial intelligence, innovative energy technologies and nuclear medicine for cancer treatment.

It also calls for the systematic inclusion of spending reviews in the preparation of budgets at different levels of government in order to improve the efficiency of public spending.

As the total amount allocated to Belgium at 30 June 2022 has been revised downwards to EUR 4,52 billion, the National Recovery and Resilience Plan (NRRP) needs to be updated before being resubmitted to the European Union. Belgium will also add a REPowerEU chapter when revising its national recovery and resilience plan. Following the Russian invasion of Ukraine, it was decided at European level to pay additional attention to energy security and to accelerate independence from Russian fossil fuels. Part of the revenues from the auctioning of the emissions trading system shall be used specifically to co-finance these objectives. Belgium receives EUR 282 million. In addition, Belgium has also chosen to include part of the Brexit Adjustment Reserve (EUR 229 million) in this plan and will make use of the possibility to borrow. The adapted plan has been submitted to the European Commission and negotiations between Belgium and the European Commission before its adoption are ongoing.

The just transition will be one of the priorities of the Environment Council during the Belgian Presidency, building on the broad civil society dialogue launched in Belgium since 2022 with the aim of institutionalising a long-term consultation process on the just transition¹⁰.

A European just transition conference will take place during the Belgian Presidency to contribute to knowledge building on the topic in the EU and to facilitate the exchange of best practices. A federal conference on fair transition in Belgium already took place in 2023, bringing together academic experts, civil society, citizens and experts from administrations and various advisory councils to identify the needs of the transition. This process will be completed by the end of 2023 and the recommendations and views gathered will be gathered to start implementing them politically.

In the European Commission's report in the context of the European Semester, the European Commission informs Belgium that the National Recovery and Resilience Plan (NRRP) strengthens social resilience through measures that promote inclusive education systems, the participation of vulnerable groups in the labour market and an increase in social housing and early childcare. The national recovery and resilience plan also includes measures to reform end-of-career rules and the pension system to (i) address the challenges of social and financial sustainability; (II)

¹⁰ States General | Just Transition <https://justtransition.be/fr/etats-generaux>

increase the employment rate of older workers; (III) strengthen the solidarity role of the pension system; and (iv) ensure convergence between and within different pension systems.

Federal State

Environmental efforts must go hand in hand with social cohesion, democratic participation and a sustainable and competitive economy. This means that there is an increasing focus on a just transition where, among other things, the restructuring of our economy, the relationship between winners and losers, and the accompanying support and redistribution mechanisms need to be taken into account. The just transition guides the update of this plan.

The fact that the transition to a climate-neutral future offers great opportunities is also the leitmotiv of the European Green Deal, which the Commission presented as the new economic and geopolitical strategy. It is not for anything that the European Council has put the green transition at the heart of the recovery policy: particular attention is thus paid in the Government's agreement in the context of the development of the European Green Deal and Next Generation EU.

By putting the economy on a transition path, the recovery can improve the quality of life, especially for the most vulnerable, and reduce our ecological footprint, but also in general that of all citizens. But also to create thousands of sustainable jobs, the so-called "triple dividend" of the green transition.

The European principles of climate mainstreaming and do no significant harm will be an important guide in this respect. The federal government will ensure that the main investments are in line with a climate-neutral and resource-efficient economy as part of the Recovery and Resilience Plan.

Policies will be scrutinised against the potential 'losers' of these policies, in line with the European Commission's focus on the just transition. Fair compensation will be sought to ensure that benefits and costs are fairly distributed and that the living conditions of disadvantaged people are improved. The restructuring of a number of sectors of activity will have a potentially serious impact on millions of EU workers. On the other hand, the green transition is also a source of wealth, economic growth and new employment sectors. The just transition is an important guide to updating this plan.

Flemish Region

The Flemish coalition agreement 2019-2024 foresees an "additional effort to reduce energy poverty" in the coming years. In addition, the Energy Policy Document 2019-2024 set out ambitions to shape a socially just energy transition by strengthening social energy policy with appropriate measures and always monitoring energy affordability for all target groups.

Region Walloon

One of the 5 guiding principles of the PACE is to "*ensure a just and inclusive transition*". Given that on average higher-income households contribute significantly more to GHG emissions than low-income households, while the latter are on average more strongly affected by the adverse effects of climate change¹¹, the measures ensure a just and inclusive transition. They aim at a balanced development and fair contribution from different stakeholders,

¹¹ See in particular: Oxfam, Report on tackling inequalities in CO2 emissions in the European Union, 8 December 2020: https://www.oxfam.org.uk/sites/default/files/confronting_carbon_inequality_in_the_eu_fr_0.pdf

take into account the opportunities of more vulnerable audiences and propose specific accompanying measures. The measures shall also take into account the potential impacts of climate policies on gender equality and how they can positively contribute to reducing any form of inequality and discrimination.

Another guiding principle of PACE is to *“strengthen citizen participation in climate policy decisions and implementation”*. Climate is a cross-cutting theme par excellence. The positive involvement of all societal stakeholders (citizens, businesses, trade unions, associations, etc.) is crucial for decarbonising Wallonia in the long term and making real progress in the short term. With this in mind, this plan has been fed by a participatory **process**. Its implementation and monitoring is based on a commitment of all stakeholders in the actions affecting them, including through participatory schemes.

Brussels Capital Region

According to the Brussels Institute of Statistics and Analysis (IBSA), in 2019 the share of the Brussels population living in a household with income below the at-risk-of-poverty threshold was 31.4 %¹². This is 3 times more than in Flanders and almost 2 times more than in Wallonia. In this particular social and economic context, the issue of access to energy represents a considerable challenge at a time when climate issues are becoming increasingly worrying and our energy system needs to be reinvented.

Energy is not a good like another. This is a basic necessity, access to which is a fundamental right. However, access to energy is still a problem both in general and for part of the Brussels population. Energy poverty, which refers to ‘the inability of a household to access – in its home – the energy it needs, at an affordable income’ (Delvaux et al. 2017), affects 27.6 % of households in Brussels in 2019¹³.

Ultimately, in the BCR, the budgets of households, companies and public authorities are likely to be heavily affected by rising energy prices. The study on the impact of higher energy prices on the Brussels Region showed that almost 90 % of the population could face energy poverty in 2050¹⁴ under high energy prices. Energy price increases will have greater consequences for low-income households, including access to essential goods and services such as housing, food, and health. These price increases will increase the risk of over-indebtedness and consequently the risk of economic and social dropping.

Anticipating this increase in prices and its impact on our energy system, as well as CO₂ emissions linked to energy consumption, requires measures to be taken with regard to energy renovation, transport, urbanisation and spatial planning, technological innovations, the organisation of human activities and the development of new professions. This transition, which must be socially just, towards a climate-neutral economy will take time and the lower the cost will be if it is well prepared and starts at an early stage.

Moreover, the social dimension of energy and climate policies requires their impact on the most vulnerable people to be constantly measured and targeted social assistance, and an efficient and socially fair energy policy to be applied on the ground.

The Brussels measures of the NECP must take into account social justice and ensure that the benefits of this plan benefit the whole population, without generating or amplifying social inequalities.

In order to gain a better understanding of these interactions and in accordance with the principle of “social justice and just transition” enshrined in COBRACE, the Brussels Government is also making the following commitments:

- Collect and publish indicators on the state of environmental and social inequalities in the BCR; work carried

¹²IBSA, *Socio-economic Panorama 2021*, December 2021.

¹³Coene and Al. *Energy and Water Poverty Barometers 2019, 2021*.

¹⁴Study carried out for Brussels Environment by the University of Mons, the Université Libre de Bruxelles and the Climact Study Office: Assessment of the social, economic and administrative consequences of a high oil price per barrel in the BCR, 2012.

out by IBSA with the participation of Brussels Environment, Perspective.Brussels in collaboration with the Health and Social Observatory.

- Integrating into sectoral public policies a reflection on identifying levers to reduce environmental and social inequalities.

Moreover, climate and energy challenges can only find solutions if they are based on a shared vision of Brussels in 2030.

The Brussels Region focuses on initiatives – led by citizens in particular – that question current models and have a high potential for innovation, transition and resilience, which are necessary to achieve the region’s climate objectives. Public authorities innovate and dare doing otherwise to provide a enabling framework to support these initiatives and encourage their deployment and scaling up. This government action needs to be supported and amplified. An ambitious climate trajectory needs to be set together, networking dynamics of innovative initiatives, support change and transition wherever possible, and make life easier for those who innovate and move towards this climate horizon.

All Brussels stakeholders, public, private and citizens, are obviously affected by climate challenges and must continue to be able to contribute to the achievement of the region’s objectives.

To this end, the first step is to ensure that information and communication is developed to enable everyone to understand the challenges and opportunities of the transition and to identify the levers at their disposal to contribute to this, while at the same time integrating them into the positive and collective narrative of the transition. It is this shared vision, this common narrative, that will trigger change and allow everyone to feel involved and cohesive in a collective responsibility.

Secondly, the aim is for public authorities to increase the activation and support of the transition of all Brussels actors, bearing in mind the difficulties and needs of everyone in the measures to be implemented. Making responsible production and consumption actions accessible requires understanding of the realities experienced by the various actors and overcoming their difficulties through accompanying and support measures. This is in line with a just and inclusive transition.

Finally, solutions cannot come solely from public authorities. Setting the medium and long term climate trajectory is an uncertain and evolving process that requires a participatory and contributory democracy approach in order to co-build effective policies and trigger the deployment of innovative solutions.

In practical terms, this threefold objective (information and communication – accompanying and supporting – concerting and co-building) will result in the establishment of climate governance based on dialogue with the various stakeholders, in particular in the context of the Renolution Alliance, and a socially just transition, which is a real condition for success in continuously nurturing climate policies and ensuring that they respond to the realities and needs of Brussels, as well as those of the Brussels economic and associative fabric.

This will involve mainstreaming climate policies across all regional competences, as well as close involvement of local authorities, citizens’ groups, economic and social actors as key partners in the just transition.

This will also be achieved through the structural integration into this governance of citizens – who are already acting on a daily basis – so that they feed into public policies in their experiences.

General and specific emergency response

Accelerating the energy transition is also the most structuring response to the current geopolitical challenges from the outset. The energy crisis has further highlighted vulnerability to abroad and dependence on fossil fuels. In this context, Belgium, like other countries, has thoroughly reviewed its energy policy and has taken short- and long-term measures in this direction.

In the short term, the focus was on replacing Russian gas and oil and on changing import routes to secure supply. At a record speed, Russian gas and oil have been largely replaced. In the longer term, however, the aim is to reconcile solutions to the energy and climate crisis so that, through targeted investments, we can not only reduce our dependence on Russian fossil fuels, but also eliminate emissions from the use of fossil fuels in general.

In addition, individual governments have also focused on short-term energy savings to contribute to the energy supply crisis. For example, measures have been taken to achieve energy savings in the public sector, in particular by reducing street lighting and saving on heating and air-conditioning in public buildings. Greater efforts have been made to inform citizens about voluntary energy saving measures and measures have been taken to protect tenants and socially vulnerable groups from high energy prices.

Federal State

The acceleration of the energy transition is from the outset the most structuring response to the current geopolitical challenges. The energy crisis has highlighted vulnerability to abroad and dependence on fossil fuels. In this context, Belgium, like other countries, has thoroughly reviewed its energy policy and has taken short- and long-term measures in this direction.

In the short term, the focus was on replacing Russian gas and oil, and changing import routes to secure supply. At a record speed, Russian gas and oil have been largely replaced. In the longer term, the aim is to reconcile the energy and climate crises so that, through targeted investments, we can not only reduce our dependence on Russian fossil fuels, but also put an end to fossil fuel emissions in general.

Europe's energy supply for the next winter and subsequent winters raises serious concerns, in particular due to the historical weakness of electricity production in France due to problems in the French nuclear fleet. Thanks to its central position in Western Europe and its highly connected network infrastructure with neighbouring countries, our country is in a unique position.

According to the data available today, supply is assured for the next winter, both for gas and electricity. Our country is a net exporter of electricity, mainly to France, and gas, with Germany as the main customer. For this reason, our country has not declared any warning or warning so far.

On 23 September 2022, Belgium increased its gas supply to 100 %, becoming the second European country to do so. This was made possible by amending the law in spring 2022. The government took additional measures in the summer of 2022, on 15 July, in its Winter Plan, including measures that have a short-term impact on the security of gas supply and strengthen our role as a transit country.

The conscious use of energy is always a good thing: energy that is not consumed is the cheapest energy, especially taking into account the difficult situation in our neighbouring countries, which leads, among other things, to very high prices. The federal government makes an effort to consume less energy itself. Advice to pay attention to energy is provided, in consultation with the regions.

Flemish Region

The record increase in energy prices since the second half of 2021, aggravated by Russia's military aggression against Ukraine in early 2022, has had the effect of confronting Europe with an unprecedented energy crisis. In May 2022, the European Commission announced the REPowerEU plan, which aims to accelerate the EU's independence from (Russian) fossil fuels. Flanders itself has also taken several measures to address the energy crisis. The renewable energy targets have therefore been revised upwards for 2022 and 2023. The increase therefore also contributes to achieving the 2030 renewable energy target.

In addition, several renovation grants were grouped under the denominator 'MijnVerbouwPremie' and were temporarily increased as an additional incentive to renovate housing. Additional measures have also been taken for low-income families. Families with the lowest incomes are eligible for a MijnVerbouwpremie bonus of up to 50 % (instead of 35 %) of eligible works. Families with average incomes are eligible for a MijnVerbouwpremie bonus of up to 35 % (instead of 25 %) of eligible work. The increases apply to applications submitted in 2022 and 2023. In addition, the target groups were able to borrow up to EUR 60 000 at a reduced interest rate (Mijn VerbouwLening) for renovation works under 'Mijn VerbouwPremie'. Temporary DIY support has been introduced for roof insulation works, as waiting times in the construction sector are increasing. Reducing energy consumption in buildings will also contribute to the Flemish energy efficiency target.

In the context of the energy crisis, two Council regulations were adopted at European level with the aim of reducing the consumption of natural gas and electricity and lowering bills, namely the Council Regulation on gas demand reduction by 15 % and the Council Regulation on emergency measures to reduce energy prices. The Flemish Government has therefore decided to temporarily and as far as possible switch off street lighting between 23 and 6 on regional roads, to regulate the temperature in the buildings of the Flemish Authority to a maximum of 19 °C and to launch an information campaign on *Mijn VerbouwPremie* to encourage citizens to renovate their property in energy. The financing of energy houses has also been strengthened with the aim of broadening the target groups eligible for energy scan for households, support for families with payment problems to maintain heating systems and replace them with a more sustainable alternative, and support for low-income families for the installation of solar panels.

In order to protect households from rising energy prices, the Flemish Government extended the period during which network operators do not have the right to disconnect households from the energy supply. Between 1 November 2022 and 30 April 2023, the system operator shall not disconnect anyone or interrupt the minimum electricity supply. The CPAS energy offices have also been strengthened to avoid energy debt accumulation and speed up debt reduction.

Since 1 October 2022, the Flemish Government has also frozen the rents of the most energy-intensive dwellings (CPE E and F label). For dwellings with an CPE D label, indexation will be limited to 50 %. This measure is valid for one year. From 1 October 2023, indexation for rental property without CPE or with an EPC D, E and F label will be allowed again, but according to a modified formula. In this way, tenants will not suffer a sudden and significant increase in their rent after one year. This measure aims to ensure the accessibility of dwellings and to encourage owners to improve the energy performance of the rental stock.

Region Walloon

The importance and urgency of acting for a more resilient society has also been illustrated for 2 years by a series of events and crises.

On the one hand, the **COVID-19 health crisis** and the floods of July 2021 revealed the fragility and interconnection of our economic and social systems and infrastructure. They have led to recovery and reconstruction plans and actions focused on sustainability and resilience.

On the other hand, **the energy price crisis**, amplified by the **war in Ukraine**, has highlighted the geostrategic importance of a rapid energy transition in Europe to ensure its autonomy. The exit from fossil fuels, the reduction of emissions from agricultural production and the relocation of a series of industrial and technological processes to Wallonia are all key issues in this context.

Brussels Capital Region

The energy crisis reinforces the need to accelerate the transition in order to minimise the energy needs of all

Brussels players and protect them from the impact of price variations. It is more necessary than ever to implement measures on a collective scale and implement action at different levels of society. In addition to sectoral actions aimed at reducing the region's energy consumption, a set of measures to strengthen energy sobriety at all levels was activated already in the winter of 2022-2023¹⁵, and is maintained in the NECP.

In its observation of energy prices, the energy regulator BRUGEL estimates the amounts of annual energy bills for an average Brussels household under variable contracts at EUR 1.726 in 2020, EUR 2.586 in 2021 at more than EUR 5.000 in 2022. According to an IBSA study of July 2022, the energy crisis is also weakening economic sectors that have already been largely affected by the economic consequences of the fight against coronavirus. In parallel with the measures taken at European and federal level, the Region must also put in place structural measures to protect Brussels from soaring energy prices.

The exemplary role of public authorities in the energy demand process needs to be strengthened. It would not be conceivable to ask citizens and businesses to control their energy consumption without the public authorities making their share of the effort and leading by example by reducing their own needs.

Security

The security effects of climate change include increased frequency and intensity of heatwaves, droughts, extreme weather events, more seasonal rainfall and floods, uncontrolled natural phenomena and deterioration of air quality. The different entities are taking measures, each in their areas of competence, to minimise the impact of climate change on security, social cohesion and geopolitical stability.

Security of critical and strategic energy infrastructure

Federal State

The security of our energy infrastructure is a priority, both physical and cyber. The sabotage of the NordStream2 pipeline also shows the vulnerability of critical infrastructure. Vigilance remains to be done, including on cybersecurity. In the framework of the implementation of the Law on Security of Network and Information Systems (NIS Act), 33 new "providers of essential services" for gas, electricity and oil have been designated.

Taking energy into hands also means preventing the next crisis by accelerating the energy transition. The federal government is moving up with offshore wind power. With the first ever energy island and the new interconnections, with three new wind farms in the North Sea and with the 'repowering' of the first zone, we turn the North Sea into a large green power plant. By significantly increasing offshore wind capacity, we are strengthening our energy independence, lowering our bills and reducing CO2 emissions.

In the 1970s it was decided to invest in gas infrastructure and the construction of the Zeebrugge port. Our unique situation at the heart of Europe and at an energy crossroads in the middle of several industrial hubs makes us today an ideal transit country for gas and electricity, and in the future for green hydrogen. In addition, we are pioneers of hydrogen technology, and we have one of the most developed hydrogen networks in the world. Today, we are taking the decision to invest in a hydrogen backbone, enabling the import of green hydrogen in the future. Hydrogen plays a crucial role in decarbonising heavy industry and is an essential part of the puzzle to achieve our climate goals.

In addition to accelerating renewable energy, the government has also decided to keep 2 GW of nuclear energy in

¹⁵Decree of the Government of the Brussels-Capital Region of 15/12/2022 laying down temporary measures to reduce demand for gas and electricity and access to protected customer status for households in the context of the energy crisis.

the energy mix for a further 10 years. In March 2022, the Government took the decision in principle, which has since been implemented by a Letter of Intent 16 signed on 21 July 2022 by the Federal Government and Engie. The new energy mix ensures the supply and rapid increase of renewable energy providing access to green and cheap energy. This supply is also closely monitored and consultation with neighbouring countries intensified.

Our households and businesses are burdened by historically high bills. The government's policy is to provide as much support as possible to those most in need. The social tariff is one of the most effective policy tools to protect the most vulnerable from rising prices. The reform has the following objectives: identifying and eliminating inactivity traps by means of a degressive system, adaptation of the calculation method, automatic granting of the social tariff, practical access to the right to the increased allowance, policy

16 Engie and the Belgian Federal Government govern the extension of the Doel 4 and Tihange 3 reactors.

<https://www.premier.be/fr/engie-et-le-gouvernement-federal-belge-encadrent-la-prolongation-des-reacteurs-de-doel-4-et-tihange>

comprehensive for persons with disabilities (including the case of divorced parents), etc. so that it can enter into force by 1 January 2024.

Energy is the vital element of our economy and society. Businesses and households that have never had financial problems before are barely able to make ends meet, if at all, due to circumstances for which they are not responsible.

Many households also face financial difficulties. Thanks to the 6 % VAT reduction for gas and electricity, made permanent as part of the excise reform, and the basic flat rate for electricity and gas during the winter months (1 November 2022-31 March 2023) to a total of EUR 980, we are lightening the bill. Persons heating oil or pellets also receive aid in the form of premiums. Measures for vulnerable households have been strengthened during the energy crisis.

The wider target group for the social tariff has retained its right as energy customers who benefit from the increased allocation. The allowance paid by the Social Heat Fund to fuel oil and propane users was also increased. The government assesses these measures at regular intervals. As energy prices fall, these measures will be phased out and they will be phased out. The government cannot meet all needs, but it helps our households through this difficult period. Various fiscal and social measures have also been taken for companies to mitigate the impact of the crisis. For example, it can be noted in particular that companies in difficulty due to high energy costs benefited from a deferral of social security contributions, that self-employed people benefited from longer than expected social security contributions reimbursement plans. The investment deduction measures have also been adapted.

Taking energy into hands also means that citizens can share the benefits of renewable energy. We are preparing the electricity market for the future, thanks to the transposition of the Energy Market Design (EMD) Directive.

Energy is now used as a weapon. It is thanks to European cooperation that the crisis is avoided. In terms of supply, our country plays a crucial role. As a transit country for gas, we supply Germany. We supply electricity to France, which is facing nuclear problems. These interconnections are strengthened. We are also working on new offshore wind interconnections with Denmark and the UK. Thanks to European cooperation, we always have access to energy that is not produced in our country.

In addition to solidarity in supply, there is a need for European solidarity in prices determined at European level. Belgium continues to play a pioneering role in electricity market reform and temporary measures to curb the volatile gas market while ensuring supply.

Energy in our hands therefore means that we need to act at all levels to enable us to pass the difficult winter in the short term and take decisions now that strengthen our energy independence and security of supply¹⁶.

16 Algemene Beleidsnota Energie 2023, Belgische Kamer van Volksvertegenwoordigers (De minister van Energie, Tinne Van der Straeten), 31 oktober 2022.

The situation in Belgium is now under control, but the crisis creates greater uncertainty, including a possible demand for solidarity from neighbouring countries. To move safely from winter 2022/2023, the federal government has taken additional measures, based on the precautionary principle, in the context of the Winter Plan 2022.

At European level, Belgium has pushed for increased coordination in the light of the winter of 2023 on gas supply, energy demand management and control of gas prices. The Winter Plan includes measures that will have a short-term impact and measures that will have a long-term impact, but for which we must now decide to implement them¹⁷.

The recent concrete decisions taken by the federal government to ensure security of supply in the coming years are described in more detail in section 1.2. ii.

II. Strategy related to the five dimensions of the Energy Union

Adaptation

Federal State

The federal government has a range of powers to strengthen the resilience of our country and its citizens. In the new federal adaptation package “Towards a climate-resilient society by 2050 – Federal adaptation measures 2023-2026”, 28 measures were identified across 8 policy areas (research, biodiversity, infrastructure, natural resources, public health, risk and crisis management, international cooperation and awareness raising). These measures are based on studies such as the “Assessment of the socio-economic impact of climate change in Belgium (2020)” which addresses the impact of climate change in various areas (health, labour productivity, infrastructure, agriculture, health, forestry, ecosystem services, insurance sector, cross-border effects). Extreme weather events are at the heart of this study. With this adaptation package, Belgium is in line with the Paris Agreement (2015), the new EU Strategy on Adaptation to Climate Change (2021) and the Governance Regulation¹⁸.

Flemish Region

In autumn 2022, the Flemish Government approved the Flemish Climate Change Adaptation Plan.¹⁹ The Flemish Climate Change Adaptation Plan is expected to better prepare Flanders for the effects of climate change, both in the short term by 2030 and in the longer term by 2050.

In this sense, the Flemish Climate Change Adaptation Plan is closely aligned with the (new) European Climate Change Adaptation Strategy, which has committed to a higher ambition on climate resilience and aims to make Europe a climate-resilient society by 2050 by focusing on smarter adaptation, more systemic adaptation and accelerating adaptation. The Flemish Climate Change Adaptation Plan responds to this request and contains a number of implementation strategies and measures, with which we can work on the ground. To strengthen the link with the European strategy, Flanders is also following a number of European knowledge-sharing initiatives such as Climate-ADAPT.

The plan contains six strategic lines, each consisting of several action points with concrete measures to support and

<https://www.dekamer.be/doc/FLWB/pdf/55/2934/55K2934019.pdf>

A17 Winter Plan to Secure Energy Supply, TinneVanderStraeten.be, 15 July 2022

¹⁸Governance Regulation (EU) 2018/1999 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Directive 94/22/EC, Directive 98/70/EC, Directive 2009/31/EC, Regulation (EC) No 663/2009, Regulation (EC) No 715/2009, Directive 2009/73/EC, Council Directive 2009/119/EC, Directive 2010/31/EU, Directive 2012/27/EU, Directive 2013/30/EU and Council Directive (EU) 2015/652 and repealing Regulation (EU) No 525/2013.

<https://eur-lex.europa.eu/legal-content/FR/TXT/PDF/?uri=CELEX:32018R1999&from=EN>

Flemish¹⁹ Plan “Adaptation to Climate Change 2030”, <https://omgeving.vlaanderen.be/nl/klimaat-en-milieu/klimaat/vlaams-klimaatadaptatieplan>

facilitate the development and implementation of the plan:

- Flanders builds and connects green and blue infrastructure on a continuous basis throughout the country.
- Availability and use of water.
- Water space depending on water security and drought prevention.
- Restoration and climate-smart management of nature and forests.
- Climate-friendly health policy.
- Collaboration and coordination.

Throughout these different policy lines, maximum efforts are being made to jointly address climate change adaptation and mitigation. Examples include:

- Preparation of management plans and management of various ecosystems such as wetlands, peatlands and forest areas (extension). In doing so, an integrated approach should, on the one hand, make these ecosystems more resilient to climate change and, on the other hand, achieve carbon storage, maintain or increase biodiversity and improve quality of life.
- The use of the EPB rules (relating to energy services for buildings) as a tool to support the construction of buildings that are heat resilient.
- Increasing soil organic matter content, which contributes to both soil carbon storage (mitigation) and water retention capacity.

Region Walloon

The PACE 2016-2022 included several climate change adaptation measures. In order to strengthen the implementation of adaptation policies and measures, Wallonia will adopt an adaptation strategy accompanied by a regional action plan. The Walloon adaptation strategy will be based repeatedly on the recommendations of various Walloon reports and studies, some studies are still being implemented, while others have been completed.

A first report "*Adapting to climate change in Wallonia: Synthesis and points of attention for the planned study*" (April 2022) made it possible to critically assess the existing situation and identify points of attention for the multidisciplinary adaptation study. This report therefore provides an up-to-date scientific reference framework capable of identifying and challenging the objectives, sites, risks, constraints and adaptation needs in Wallonia.

Subsequently, at the beginning of November 2022, the Walloon Government approved the specifications for a multidisciplinary study 'Diagnostic of vulnerabilities'. Increasing Walloon resilience through adaptation to climate change. Scenarios, impacts and measures ", which started in May 2023.

Brussels Capital Region

As regards adaptation to climate change, Article 4 of the European Climate Law provides that Member States shall ensure continuous progress in improving adaptive capacity, strengthening resilience and reducing vulnerability to climate change, in line with Article 7 of the Paris Agreement. Member States shall develop and implement adaptation strategies and plans that include comprehensive risk management frameworks based on robust climate and vulnerability baselines, as well as progress assessments.

This ambition is pursued in the Brussels Air Climate Energy Plan (PACE). The Region has key competences that it can activate to reduce its vulnerability to these different risks:

- Strengthen the resilience of the urban environment and natural resources in the face of a changing climate.
- Strengthening the role of soil in adapting to climate change.
- Responding to the challenges of water management in a context of climate change.
- Developing nature and preserving biodiversity in a changing climate.
- Increase the resilience of the Soignes forest.
- Integrate the challenges of adaptation to the effects of climate change into spatial plans and strategies and urban planning regulations.
- Design mechanisms to support projects related to environmental resilience urban.
- Improve the resilience of critical infrastructure to the risks posed by climate change.
- Protect the population from extreme climate events and their systemic consequences, and from the emergence of new diseases or allergies linked to climate change.
- Monitoring the evolution of the urban environment.

These competences are activated as part of the Brussels contribution to the NECP.

Decarbonisation

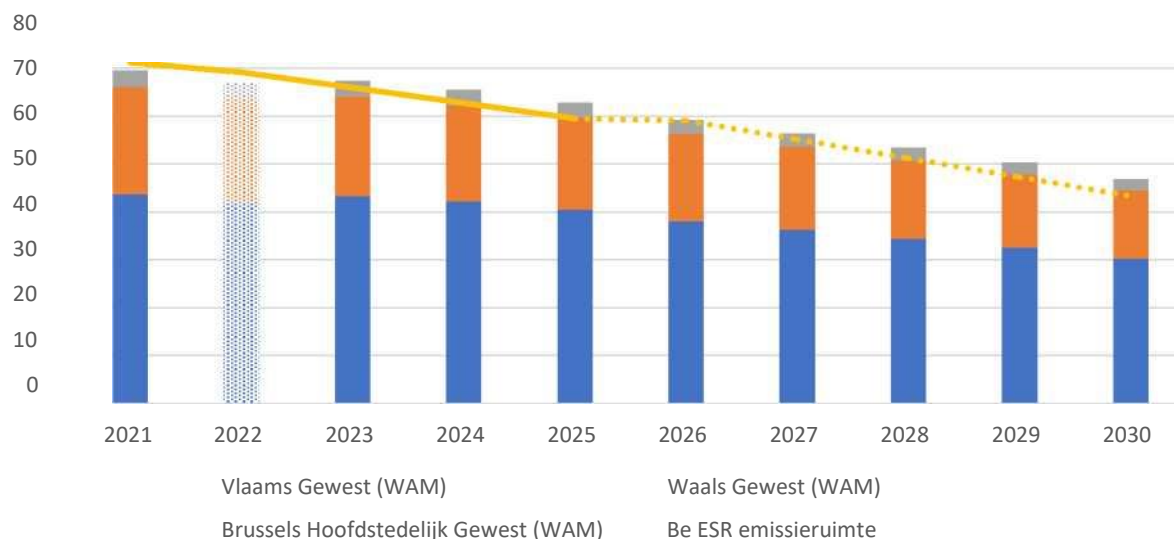
Greenhouse gas emissions and removals

The Federal State	Contribution to the 47 % reduction target by 2030 compared to 2005
Flemish Region	40 % reduction by 2030 compared to 2005
Region Walloon	47 % reduction by 2030 compared to 2005
Brussels Capital Region	47 % reduction by 2030 compared to 2005

Based on contributions from individual entities, Belgium achieves, with the measures proposed in this plan, an emission reduction for the ESA sectors of 42.6 % in 2030 compared to 2005. This represents a deficit of 4 million tonnes of CO₂-eq in 2030 compared to the reduction target that applies to Belgium in accordance with the Effort Sharing Regulation, i.e. around 8 % of the emission margin allocated to Belgium for 2030.

From 2023 onwards, emissions under the WAM scenario exceed Belgium's annual emission allocation, but in 2023 this can probably be offset by the surpluses accumulated in 2021 and 2022. However, a cumulative deficit appears from 2024 onwards. For the whole period 2021-2030, the cumulative deficit based on WAM projections is estimated at 13,7 million tonnes of CO₂-eq. This deficit corresponds to 32 % of Belgium's emission allocation for 2030, or approximately 2 % of the estimated emission allocation for the period 2021-2030.

Belgium commits to reduce Belgium's emission allowance deficit by taking necessary measures and to compensate it with the use of flexibility, through additional agreements during the burden-sharing negotiations.



Source: Compilation of regional and federal projections for 2021-2030 (ESA emissions WAM21); 2021-2022 and 2030 in accordance with Executive Order (EU) 2020/212622, 2023-2025 (own calculation) and 2026-2029 (own calculation, preliminary estimate) in accordance with Regulation (EU) 2023/857 (23ESA emissions room).

According to the Effort Sharing Regulation, Member States may use various flexibility mechanisms if they do not themselves have a sufficient number of emission allowances. Compared to the 2013-2020 period, some forms of flexibility were retained (savings, borrowing and emissions trading), some mechanisms have been removed (purchase of allowances from CDM and JI projects) and new mechanisms have been introduced (ETS flexibility and LULUCF flexibility). The ESA limits quantitatively the use of various flexible instruments.

Belgium has already notified that it would use 1.89 % of the ETS-ESR flexibility.

Reductions in ESA sectors under the scenario with additional measures (WAM) (in Mt CO₂ eq, last column as a percentage)

	2005 (recalculated)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2030 vs. 2005
Be ESA Objective²⁴	81,6	71,1	69,1	65,9	62,7	59,4	59,0	55,1	51,1	47,2	43,3	— 47.0 %
BE WAM	81,6	69,5	66,8	67,4	65,4	62,7	59,2	56,3	53,3	50,3	46,8	— 42.6 %
VG WAM	50,4	43,7	44,2	43,3	42,2	40,5	38,1	36,3	34,5	32,5	30,2	— 40.0 %

²¹2021 on the basis of the report of the inventory of 15/03/2023 and 2022 on the basis of the provisional report of 31/07/2023.

²²<https://eur-lex.europa.eu/legal-content/NL/TXT/PDF/?uri=CELEX:32020D2126>

²³<https://eur-lex.europa.eu/legal-content/NL/TXT/PDF/?uri=CELEX:32023R0857>

²⁴For 2026-2029, this is an estimate

WG WAM	26,7	22,4	21,6	20,8	20,0	19,2	18,2	17,2	16,2	15,2	14,3	— 46.5 %
BHG WAM	4,5	3,5	3,3	3,3	3,2	3,0	2,9	2,8	2,6	2,5	2,3	— 48.7 %

Source: Belgian FIU report (15/03/2023) for 2021; compilation of regional and federal projections for 2022-2030.

Estimate of the ESA emission space of Belgium (in Mt CO₂ eq)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Be ESA Objective²⁵	71,1	69,1	65,9	62,7	59,4	59,0	55,1	51,1	47,2	43,3
BE WAM	69,5	66,8	67,4	65,4	62,7	59,2	56,3	53,3	50,3	46,8
Annual report	1,6	2,4	— 1,5	— 2,7	— 3,3	— 0,2	— 1,2	— 2,2	— 3,1	— 3,5
Cumulative balance sheet	1,6	4,0	2,5	— 0,2	— 3,5	— 3,7	— 4,9	— 7,1	— 10,2	— 13,7

Source: Belgian FIU report (15/03/2023) for 2021; compilation of regional and federal projections for 2022-2030.

Based on the 2020 inventory included in the LUCF Regulation, the average storage in the period 2016-2018 for Belgium was 1 032 kt_{CO₂-eq}. However, in Inventory 2023 the figures for 2016-2018 have been corrected (see table below), so that the average for 2016-2018 according to the latest inventory is 674 kt_{CO₂-eq}. Belgium's target 2030 according to the latest inventory is therefore 674 + 320 = 994 kt CO₂-eq of storage.

Evolution of emissions/storage in the LUCF sector (WAM scenario) MtCO₂-eq.²

2005	2010	2015	2016	2017	2018	2019	2020	2021	2025	2030
— 1,8	— 0,4	— 0,9	— 0,8	— 0,6	— 0,6	— 0,5	— 0,3	— 0,3	— 0,9	— 1,3

Source: Belgian FIU report (15/03/2023) for 2005-2021; compilation of regional and federal projections for 2025-2030.

Federal State

With the decision of 8 October 2021²⁶, the Federal Government reiterates the commitment of the Government Agreement to review its contribution to the National Energy and Climate Plan through an action plan, in line with the target of reducing greenhouse gas emissions by 55 % by 2030 compared to 1990.

In this context, the Government wishes to raise the ambition of federal climate policy and commits to:

- implement as soon as possible all policies and measures included in the federal contribution in the current NECP;
- for the sector not subject to the Emissions Trading System (EU ETS), develop and implement new and strengthened policies and measures, aiming at an additional emission reduction of 25 million tonnes of CO₂ equivalent over the period 2022-2030;
- strengthen existing or develop new measures to support emission reductions in the ETS sectors in the period 2021-2030, in particular by increasing electricity generation capacity in the North Sea and phasing out fossil

²⁵For 2026-2029, this is an estimate

²⁶Federal Climate Policy 2021-2030: ambitions and commitments, news.belgium, 8 October 2021.

<https://news.belgium.be/fr/politique-climatique-federale-2021-2030-ambitions-et-engagements>

fuel subsidies, preferably in the European context;

- adopt enabling policies and guidelines that help create an enabling framework for the full realisation of the potential of federal and regional emission reduction policies and measures.

On 8 October 2021, the government also established an annual federal policy cycle for monitoring the implementation of federal climate policies and measures. This cycle also ensures the accountability of the ministers and departments concerned for the operationalisation of the federal contribution to the NECP and its updates. An annual synthesis report on the state of play of the implementation of the 2021-2030 federal climate policy should make it possible to draw some lessons and make adjustments where necessary.

Flemish Region

With regard to the **decarbonisation dimension**, the challenges are very high. To prepare for the energy and climate transition, the Flemish Government, in consultation with citizens, businesses and civil society, has already developed a long-term vision which was approved by the Flemish Government on 20 December 2019: **the Flemish Climate Strategy 2050**. With this document, Flanders wants to join forces to fight together towards a common final goal, with Flanders taking on its leading role in innovation. This long-term perspective also avoids potential lock-ins. The long-term strategy aims to reduce greenhouse gas emissions by 85 % in the sectors covered by the ESR by 2050, with the ambition to achieve full climate neutrality. The document describes the indicative sectoral contributions and the basis for achieving this objective. For the ETS sectors, Flanders takes place in the context defined by Europe for these sectors with a decreasing emission allocation under the EU ETS. The Flemish Climate Strategy 2050 also describes key policies to adapt Flanders to climate change.

Flanders is pursuing the objective of reducing its greenhouse gas emissions in the sectors covered by the ESR by 40 %²⁷ by 2030 compared to 2005. This is a huge challenge for Flanders. In the period 2005-2021, i.e. for 16 years, in Flanders emissions covered by the ESR decreased by only around 13 % compared to the recalculated year 2005.

The **Energy and Climate Plan for Flanders (2030)** aims to take the necessary measures to meet this challenge. The measures included in this plan – based on the projections of the AMS scenario – lead to the proposed reduction of 40 % by 2030 (compared to a recalculated year 2005). The most recent projections of the AMS scenario indicate that with the measures in this plan there is still a shortage of emission allowances over the whole period 2021-2030 estimated at 3.5 Mt CO₂ equivalent out of a total Flemish emission allowance of 382 Mt CO₂ equivalent.

In conclusion, in order to achieve the target, Flanders makes use of the flexibility available in accordance with **Article 6 of the Effort Sharing Regulation**. This is a specific form of flexibility, reserved for Member States that face a significant difference between their 2030 ESR target and their cost-effective reduction potential. This **flexibility mechanism** allows for an additional amount of emission allowances per year for the sectors covered by the ESR by the limited cancellation of EU ETS emission allowances that would otherwise be auctioned in the period from 2021 to 2030. The cost of this facility for the period 2021-2022 was already EUR 127,1 million for Flanders. It is clear that in order to minimise the use of this flexibility, Flanders will continue to prioritise in the next 10 years the adoption of measures that further reduce the emissions covered by the ESR.

In accordance with EU rules and the request of Flanders and the Walloon Region, Belgium notified the European Commission in 2019 that it wished to use this flexibility at the level of 1.89 %. This applies in principle for a period of 10 years. However, EU rules provide that the announced use of this flexibility in the period 2021-2030 may be adjusted in 2023 (impact from 2025), 2024 (impact from 2026) and 2027 (impact from 2029). Given the scale of the challenge, Flanders will continue to use as much flexibility as possible.²⁸ With regard to climate, this plan focuses on sectors not

²⁷See paragraph 2.1.1.1 for further explanations on how this 40 % target determines the emission allocation for 2030

²⁸For 2021, Flanders used this form of flexibility up to 962 946 EUA, at a price of EUR 50,6 per EUA. For 2022, it is 962 946 EUA at the price of EUR 76,5. For the period 2021-2022, this therefore represents a cost of EUR 127,1 million.

covered by the European Emissions Trading **System (EU ETS)**. It is only for those sectors concerned by the ESR – buildings, transport, agriculture, waste and a small part of industry – that Member States must meet targets. The focus is therefore on the direct emissions of each sector. When adopting measures, we ensure that reduction measures in these sectors lead to the least indirect emissions in the ETS sector or abroad. Electrification of heating in buildings and transport are the main examples of the shift of ESR-covered emissions into the ETS.

Region Walloon

Among the 5 guiding principles of PACE contributing to the decarbonisation dimension are:

- *“ending our dependence on fossil fuels and deploying energy massively renewable”*: the plan must create the context for an **end to fossil energy dependency** and a massive use of **renewable energy**, as well as the development of new energy carriers. Priority should be given to the most efficient solutions, the direct use of renewable energy, electrification, and new hydrogen carriers in particular for hard-to-decarbonise sectors. In addition, the deployment of flexible and storage solutions, smart grids and mechanisms for sharing, self-generation and self-consumption of energy, including by citizens, will need to accelerate the integration of renewable energy.
- *“Creating a favourable environment for broad development and support for sustainable alternatives in all areas of society”*: the transition to a decarbonised society relies on the **development of sustainable alternatives** to current practices and trends in many areas; in terms of infrastructure for active mobility, sustainable farming and food practices, relocation of economic activity and support for short supply chains, rationalisation of spatial planning, etc. These alternatives also contribute positively to other environmental challenges, such as preserving biodiversity, improving the health and well-being of the population, creating local jobs, etc. They also increase the resilience of our territories to present and future climate risks.

<u>Thematic</u>	<u>Objectives 203029</u>	<u>Main measures</u>

29

Wallonia’s objectives were established under the PACE, as revised and adopted by the Walloon Government on 21 March 2023, pursuant to the Walloon Climate Decree of 2014. Statistical and methodological changes announced in the PACE, which have taken place since its adoption, are presented in Chapter 2 of this text and have served as a basis for the analyses in Section B (Chapters 4 and 5 below). The energy SPW and AWAC regularly update inventories and projections of GHG emissions, renewable energy production and energy efficiency. These are by their nature evolutionary and indicative; they may vary upwards or downwards, in the light of changes in the methodological and statistical tools used in Wallonia, and in conjunction with other levels of government. These projections remain imperfect as they can also not take into account precisely the future effects of the PACE measures for which the modalities or scope of implementation still need to be determined (e.g.: evolution of renewable financing, fossil gas exit strategy and network developments, improved tools for measuring the impacts of agricultural emissions, development of new legal frameworks, etc.). In addition, the projections will continue to evolve regularly in line with the emergence of new European provisions (i.e., the evolution of the ETS system, implementation of Fit For 55, etc.) or cyclical events by 2030. Despite these regular technical and methodological changes in the projections, the objectives described in Chapter 2 are the Walloon Government’s commitment to climate and energy by 2030. They will be used in particular in the national negotiations on burdensharing.

Decarbonisation	— 47 % non-ETS GHG compared to 2005	Getting out of fossil fuels FAST vision and Regional Mobility Strategy: rationalise mobility needs, promote modal shifts and improve vehicle performance. Ensuring the sustainability of agriculture, soil and forests. Develop carbon capture technologies. Develop a Walloon low-carbon hydrogen sector.
		Speeding up the phasing-out of fluorinated gases. Putting digital at the service of the energy and climate transition. Generalising the circular economy and functionality. Ensure the acceptability of the measures Supporting local climate energy policy.

Brussels Capital Region

The Brussels Government is pursuing the objective of reducing direct regional emissions by at least 47 % by 2030 compared to 2005. To this end, the Government has defined the following pillars for its decarbonisation action under the Brussels PACE in the building sector:

- Reduce the impact of HVAC (*Heating, Ventilation & Air Conditioning*) installations on regional emissions, including fluorinated gases.
- Draw up a fossil energy exit plan, aimed in particular at:
 - Guiding investments in both gas infrastructure and individual or collective heat production systems that will be placed in the coming years with a clear vision on the decarbonisation potential of gas and its impact on other energy carriers, and by clarifying a vision of the zoned potential of renewable heat. The aim is to rapidly clarify the regional perspectives in order to ensure full decarbonisation in 2050. This study – based on the experiences of other cities and regions – will be accompanied by the Energy Task Force 2050 set up in 2022;
 - Consider the Energy Task Force 2050 to establish a long-term vision on the evolution of the natural gas network by 2050, and to share it with the main Brussels stakeholders in this sector. At the same time, it will also be responsible for developing and maintaining a shared vision to inform the Government about the evolution of the electricity network and the opportunities offered by the

hydrogen vector to support decarbonisation in Brussels.

- Strengthen the sustainability of construction and renovation.

In terms of mobility, Brussels' vision and objectives are defined in the Goodmove plan³⁰: the Regional Mobility Plan 2020-2030, approved by the Brussels Government on 5 March 2020, after 4 years of collaborative approach by Brussels mobility actors. It sets out the broad policy orientations in the field of mobility. The aim of this plan is to improve the living environment of Brussels, while at the same time supporting the demographic and economic development of the CBR. In quantitative terms, Good Move should make it possible by 2030 to contribute to a 35 % reduction in the greenhouse gas emissions of mobility compared to 2005. The Government has defined the following pillars for its decarbonisation action in the transport sector:

- Speeding up the implementation of the Good Move Plan.
- Integrating climate challenges into the “city of short distances”.
- Use regional taxation to discourage the purchase of vehicles not adapted to travel in an urban environment and encourage car sharing.
- Develop a vision of urban logistics in Brussels.
- Use parking policy to achieve mobility objectives.
- The transition to vehicles without direct emissions:
 - Continue the outlet of the thermal engine.
 - Accompanying the emergence of vehicles without direct emissions.
 - Reducing F-gas emissions from the public transport vehicle fleet.

The Brussels Government is also taking action to reduce emissions linked to:

- the digital sector;
- food;
- waste management.

Finally, the Government has also undertaken to ensure that the measures relating to energy sobriety by public authorities drawn up in response to the energy crisis will continue before the winter of 2022-2023.

Renewables

At European level, a provisional political agreement has been reached in favour of an overall EU target of at least 45 % of renewable energy by 2030, of which at least 42.5 % will be achieved by Member States. The Belgian contribution is the sum of the federal and regional contributions. It is therefore a bottom-up approach.

Belgium supports the need to accelerate the energy transition and the phasing out of fossil fuels. Given the high demographic and geographical constraints, as well as the presence of energy-intensive industry groups, the expected national contribution according to the formula in Annex II in the revision of the Renewable Energy Directive is extremely difficult to reach on Belgian territory for Belgium and seems even unfeasible. On the other hand, our

³⁰ Full plan: https://mobilite-mobiliteit.brussels/sites/default/files/2021-04/goodmove_FR_20210420.pdf
Synthesis: https://mobilite-mobiliteit.brussels/sites/default/files/2021-03/GOODMOVE_synth%C3%A8se.pdf

geographical location in central Europe allows renewable electricity from the North Sea to be easily transported to the shore and possibly inland to the rest of Europe.

Despite these challenges, Belgium will constructively contribute to European objectives.

If, under the ambition guarantee mechanism described in the Governance Regulation, additional obligations are imposed on Belgium to bring its renewable energy contribution closer to the 34 % resulting from the formula in Annex II of the Governance Regulation, Belgium will take the necessary measures, through additional agreements during the negotiations on burden sharing.

The future energy system will be based on renewable electricity, combined with renewable and climate-neutral molecules in the transport sector, as well as sustainable heating and cooling systems. The establishment of the necessary supply chains is therefore crucial to ensure our long-term security of supply. We also need to ensure that molecules and electrons can interact in a more complementary way and through further system integration. The deployment of renewable technologies such as solar boilers, heat pumps, solar photovoltaic energy, biogas, biomass, geothermal, hydropower and offshore/onshore wind energy will support this transition in a cost-effective manner.

The Belgian contribution to the European target, based on the compilation of individual entity projections (WAM scenario), amounts to a renewable energy share of 21.7 % in 2030, following the table below:

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Numerator SER (GWh)	51067	55161	55574	57019	58906	60783	62939	66204	69209	73174	82209
<i>Federal State</i>	<i>8353</i>	<i>8372</i>	<i>8034</i>	<i>8061</i>	<i>8038</i>	<i>8038</i>	<i>7667</i>	<i>7921</i>	<i>8269</i>	<i>9649</i>	<i>16165</i>
<i>Flemish Region</i>	<i>25210</i>	<i>27338</i>	<i>26537</i>	<i>26818</i>	<i>27596</i>	<i>28303</i>	<i>28963</i>	<i>30107</i>	<i>30800</i>	<i>31405</i>	<i>31974</i>
<i>Region Walloon</i>	<i>17026</i>	<i>18498</i>	<i>20280</i>	<i>21415</i>	<i>22551</i>	<i>23802</i>	<i>25668</i>	<i>27534</i>	<i>29513</i>	<i>31493</i>	<i>33472</i>
<i>Brussels-Capital Region</i>	<i>879</i>	<i>942</i>	<i>723</i>	<i>725</i>	<i>720</i>	<i>716</i>	<i>718</i>	<i>718</i>	<i>703</i>	<i>703</i>	<i>675</i>
SER denominator (GWh)	392820	423347	433186	429701	426246	422810	415175	407532	399199	389799	379541
RES (%)	13,0	13,0	12,8	13,3	13,8	14,4	15,2	16,2	17,3	18,8	21,7

Source: 2020-2021: SHARE statistics; 2022-2030: compilation of entities WAM projections

Note: For 2020 & 2021, the differences between the sum of entities and the total are due to wind standardisation issues.

Federal State

The federal government puts the North Sea as a green power plant of the future. The North Sea offers enormous potential for producing renewable energy at an affordable price. To achieve this, a new area has been identified where up to 3.5 GW of offshore wind energy could be produced by 2030. This development goes hand in hand with the construction of a meshed offshore grid, where interconnections with North Sea partners are crucial. The existing North Sea wind energy area will also be developed where possible and desirable. The possibility of repowering existing areas is under consideration. The final target is to produce 8 GW of renewable energy in the North Sea by 2040.

To accelerate the transition to climate neutral energy, investments will be made in energy production and infrastructure, on the one hand, and making better use of existing energy sources on the other. Belgium relies on oil, natural gas and uranium imports to meet its energy demand. The federal government will be bold in the deployment of renewable energy and energy technologies such as wind, solar, biogas and battery storage. But imports will still

remain an important part of our energy supply. However, the routes will travel mainly to the North Sea region. Multiple technologies will be deployed to maximise renewable potential through federal measures. In particular, efforts will be made to develop the Princess Elisabeth area, replenish the current eastern area, accelerate the development of the offshore energy grid, invest in floating solar, develop research on aquatic culture parks to stimulate the cultivation of algae as a feedstock for biofuels. In addition, the development of a hydrogen industry, a market and an import structure is essential for this transition.

The federal government has taken additional measures in the short term to further reduce dependence on fossil fuels, including a temporary reduction of VAT on the installation and assembly of solar panels, solar boilers and heat pumps for dwellings under the age of 10; the demolition and reconstruction of buildings and a detailed proposal to reform the investment deduction framework in order to stimulate productive investments with particular attention to investments in sustainable energy, the environment, transport and digital investments. It also reformed the system of advantages granted through company cars and reduced the level of reimbursement of professional diesel. A series of other tax reforms envisaged but not adopted are avenues for pursuing the green tax reform.

As regards the use of renewable energy in the transport sector, the federal government continues to take measures to introduce, monitor and control the sustainable blending rate for road fuels. These measures are in line with the overall federal policy on biofuels and e-fuels. The ongoing negotiations at European level (RED III) will continue to be monitored and implemented in the event of an agreement, without prejudging implementation measures. The negotiations on FuelEU and MaritimeEU are also monitored and implemented. In order to reduce the impact of the addition of biofuels on the global food supply, biofuels produced from palm oil or soya will be phased out by 2023³¹.

Flemish Region

To reduce dependence on fossil fuels and tackle climate change, the share of renewable and other sustainable energy sources in the energy mix needs to increase significantly.

The VEKP target is to produce 31 974 GWh of renewable energy by 2030.

31 Political note 2023 Zakia Khatabbi, Belgian House of Representatives, 28 October 2022. <https://www.dekamer.be/doc/FLWB/pdf/55/2934/55K2934018.pdf>

Region Walloon

<u>Thematic</u>	<u>Objectives 2030</u>	<u>Main measures</u>
Renewable energy	28 to 29 % of gross final energy consumption in 2030 32	Scaling up funding in a structural and differentiated way Removing administrative and legal barriers to the rapid development of renewable electricity production pathways Removing barriers to the development of renewable heat Establishment of an enabling framework for the sustainable use of biomass Development of biogas, mine gas, e-gas, and 2nd and 3rd generation biofuels Strengthening support for citizens and project promoters Guarantee of quality renewable installations

Brussels Capital Region

On 24 October 2019, as part of the adoption of its contribution to the NECP, the Government of the CBR undertook to reach the threshold of **1250 GWh** of energy from renewable sources by 2030. This overall target of **1250 GWh** is confirmed under the PACE. This objective will be achieved by mobilising an intra-muros policy (at least 470 GWh) and extra-muro. To this end, the Government has defined the following levers for its action to develop renewable energies under the Brussels PACE:

- Accelerate the development of renewable energy for heating and cooling.
- Adapt the support mechanism (s) for green electricity production.
- Develop a zonal vision of renewable heat and facilitate the development of district heating networks.
- Ensure the supply of 100 % renewable electricity in regional public buildings and facilities.
- More efficient recovery of waste.

Supporting renewable production outside the region (extra-muros). In its PACE, in connection with the promotion of renewable energy, the Brussels Government decided to change the regulation of energy markets to promote the energy transition while protecting consumers. It therefore decided to:

It32 should be noted that, in the context of this text, statistical and methodological developments since the adoption of the PACE and described in Chapter 2 show updated technical projections which estimate the expected share of renewable energy sources in consumption in 2030 at 31 %.

- Increase opportunities for using renewable electricity produced but not self-consumed: this will establish a legislative framework for sharing (including in a co-ownership with tenants), exchange (peer-to-peer) and sale of self-generated electricity (which does not pass through the grid and circulate within a building).
- Creating a new electricity market player: the “Energy Community”.
- Regulating emerging activities in the electricity market: flexibility (i.e. adapting its electricity abstraction or injection in response to an external signal), aggregation (which aims to combine multiple consumption loads and/or electricity generation to recover them), storage and charging of electric vehicles.
- Introduce a traceability mechanism for renewable gas: guarantee of origin.

With a view to achieving the objectives of renewable energy production in the BCR for 2030, the levers offered by this new regulatory framework will make it possible to place consumers at the centre of the energy transition, by facilitating access to new production and consumption patterns. These new legal instruments will make the Brussels consumer an actor in achieving regional objectives. The support envisaged should facilitate the accelerated development of these new production and consumption patterns.

In order to benefit from this new legal framework, the Government set up an accompanying service in early 2022 to encourage the development of energy communities, the sharing, trading and sale of electricity produced from renewable sources.

Other elements of the dimension (including phasing out FFS, e-mobility, HTA, etc.)

Financing the transition

Investors, and therefore the financial sector, need to be framed in order to be able to align their decisions with the needs of the transition and the risks of climate change.

Federal State

Investors, and therefore the financial sector, need the framework to align their decisions with the needs of the transition, and the risks of climate change. All this requires the development of a comprehensive sustainable finance strategy and action plan.

See also point 3.1.1 i Sustainable Finance Strategy.

A modified tax system

The Government Agreement provides that a broader tax reform will be prepared to modernise, simplify and make the tax system fairer and more neutral. This reform will thus contribute to supporting climate ambitions.

Phasing out fossil fuel subsidies (preferably in the European context)

Current subsidies for fossil fuels will be evaluated and phased out (preferably in the European context).

First steps have been taken in this direction, reducing the partial reimbursement of professional diesel in order to stimulate sustainable innovation in the transport sector and gradually reducing the tax advantage for company cars (diesel or petrol) before abolishing it, with the aim of accelerating the greening of the corporate vehicle fleet.

Flemish Region

It should be stressed that effective climate policies have the potential to trigger a range of positive effects going beyond the objective of climate change mitigation:

- Beneficial impact on public health through reduced air pollution.
- Reduction of other pollutants such as NO_x and particulate matter.
- Increase energy independence.
- Impact on nature through the protection of ecosystems and the conservation of biodiversity.
- Improving liveability and reducing noise pollution through more modes of transport silencer and cleaner.
- Encourage innovation and the development of new technologies and products.
- Air;
- Etc.

On 25 October 2019, the Flemish Government definitively approved the Air Policy Plan 2030. The plan contains measures to tackle air pollution in Flanders and in doing so further reduce its impact on our health and the environment. The plan was drawn up in accordance with Article 23 of Directive 2008/50/EC and Directive 2016/2284. The plan also includes emission projections³³.

Both climate policy and air policy aim to reduce emissions of a number of substances into the air, greenhouse gases and pollutant emissions respectively. As these emissions in most cases come from the same sources, there is close synergy between the Energy and Climate Plan for Flanders and the Air Plan.

Thus, both the Flemish climate policy (reduction of greenhouse gas emissions) and the Flemish energy policy (energy saving and increasing renewable energy) aim to reduce the use of fossil fuels. Reduced consumption of liquid, solid and gaseous fossil fuels in industry, transport, agriculture and building heating leads to a reduction of NO_x, SO_x and PM emissions (pollutants that are also typically released when burning fossil fuels). An exception is solid biomass (a renewable fuel), the combustion of which leads to more emissions of a number of substances than the combustion of certain fossil fuels. This is particularly the case in the heating of buildings: wood burning is considered to be a biomass whose emissions can be deducted from greenhouse gases in contrast to gas and oil boilers emissions, but the burning of wood leads to a significant increase in emissions of fine particulate matter and NO_x.

Brussels Capital Region

In addition to the other decarbonisation measures outlined above, the Brussels Government has provided in its PACE for measures to:

- **Financing decarbonisation measures:** given the scale of investment, the challenge is to redirect existing capital and find new sources of financing. There has been a fundamental trend since COP21 in Paris (2015) where the question of financing the transition was central. Since then, the financial sector has increasingly relied on the development of new financial products, the diversification of financing methods, the emergence of new public-private partnerships, and the use of socially responsible investment. The Brussels Region intends to be part of this process to redirect its investments. The strategy for financing NECP measures should

³³ <https://beslissingenvlaamseregering.vlaanderen.be/document-view/5DB31EC95084E700080003D9>.

focus on the development of new financial tools, the search for partnerships for co-financing innovative projects, and a reorientation of investments in this energy transition.

- **Reduce F-gas emissions** (from the cold sector, excluding industry, with low urban presence).
- **Involving local authorities in climate policies:** local authorities are a key partner of the region in achieving climate, energy and air quality objectives. Their involvement and involvement in achieving these objectives will be a factor in the success of regional environmental strategies, in agreement with the Brussels DPG 2019-2024.
- **Ensuring international climate finance:** developing countries are the most vulnerable to the effects of climate change, whereas they have historically been the least responsible for its emissions. Climate finance is first and foremost a question of international solidarity and climate justice.

Complementing the new regional, horizontal and cross-cutting climate governance.

Energy efficiency dimension

The Belgian contribution to the binding European target will be the sum of the contributions of the different entities.

According to projections (WAM scenario), primary energy consumption in 2030 will be 36,5 Mtoe and final energy consumption of 29,9 Mtoe. Compared to the 2020 reference scenario, which projects primary energy consumption of 38,3 Mtoe in 2030 and final energy consumption of 33,1 Mtoe in 2030, this means an energy saving of 1,8 Mtoe or 4.7 % on primary energy consumption compared to the 2020 reference scenario in 2030 and converted into a saving of 3,1 Mtoe or 9.5 % in final consumption compared to the 2020 baseline in 2030.

Primary and final energy consumption ktoe

	Eurostat (June 2023)					WAM scenario		Formula Annex I (2030)
	2005	2010	2015	2020	2021	2025	2030	
Primary energy consumption	51.801	53.622	45.952	44.206	49.073	42.930	36.522 (-4.7 %)	33.769 (-11.9 %)
Final energy consumption	35.358	36.809	34.550	32.005	34.504	33.722	29.934 (-9.5 %)	28.783 (-13 %)

Source: Source: 2020-2021: Eurostat; 2022-2030: compilation of entity projections

Note 1: Final energy consumption (FEC) includes international aviation and excludes ambient heat. Blast furnace consumption is not included.

Primary energy consumption (PEC) is gross inland consumption minus non-energy consumption and ambient heat

Note 2: The primary consumption of natural gas in the Belgian power park was quantified by the Federal Planning Bureau on the basis of the TYNDP 2020 National Trends study, prepared by ENTSOE and modelled in Artelys Crystal Supergrid. Capacity, final energy consumption and fuel prices have been adjusted in the model according to Belgium's WAM scenario.

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
ECF (GWh)	372215	401277	405245	400931	396494	392191	384378	376565	368073	358520	348135
<i>Flemish Region</i>			265338	263385	261670	260283	255258	250328	244900	238418	231428
<i>Region Walloon</i>			121189	118972	116697	114540	112116	109693	107270	104847	102425
<i>Brussels Capital Region</i>			18717	18573	18127	17368	17004	16544	15903	15254	14281

Source: 2020-2021: Eurostat; 2022-2030: compilation of entity projections

Final energy consumption (FEC) includes international aviation, excluding ambient heat. The consumption of blast furnaces shall not be counted.

If, under the ambition guarantee scheme described in the Energy Efficiency Directive (recast), additional obligations are imposed on Belgium to increase its contribution to the 11.9 % (primary energy consumption) and 13 % (final energy consumption) resulting from the formula in Annex I of the Energy Efficiency Directive, Belgium will take the necessary measures, through additional agreements in the negotiations on burden-sharing.

A major contribution to the Belgian target will have to come from the implementation of Article 8 of the EED Directive. Under Article 8 (former Article 7), Belgium had to comply with an annual energy saving of 0.8 %, which corresponded to a cumulative energy saving of 185.8 TWh in 2021-2030.

Following the revision of the EED in Fit for 55, the annual energy saving target is increased through a mechanism:

- 0,8%in2021-2023
- 1,3%in2024-2025
- 1,5%in2026-2027
- 1,9%in2028-2030

In order to implement Article 8 of the revised EED, Belgium needs to save 267.65 TWh of energy, cumulated over the period 2021-2030. Based on the bottom-up contributions of each entity, the measures in this plan will contribute approximately 156.762 TWh.

The contribution of the different entities to this objective is as follows:

- Federal State: 1.209 TWh
- Flemish Region: 91 845 TWh
- Walloon Region: 54 960 TWh
- Brussels-Capital Region: 8 747 TWh

Belgium will take the necessary measures, through additional agreements during the burden-sharing negotiations, to achieve the energy savings required under Article 8.

The federated entities participate in the Belgian contribution through policies and measures and the federal state, within its powers, participates in the Belgian contribution through accompanying measures.

Federal State

The cheapest energy is the one that is not used. This benefits both climate objectives and security of supply. Energy efficiency is largely a regional competence, but the federal government is also strongly involved within its remit.

The federal state will always strive to achieve a high level of energy efficiency within its competence in transport, industry and buildings, while ensuring affordable costs. And for all appliances covered by the Ecodesign Directive.

Three concrete federal measures to improve energy efficiency were notified under Article 8 EED recast:

- VAT on demolition and reconstruction works is generally reduced to 6 %. The aim of these measures is to encourage owners of poor quality buildings or building developers to renovate their buildings to make them more energy efficient.
- Users of vehicles shared within the defence will be trained in more economical driving in order to save fuel.
- The SNCB implements a number of measures for the transport of goods and staff, such as eco-driving, eco-parking, the re-ignition of existing rolling stock, the use of more energy-efficient equipment and the reduction of the use of traction energy for railways.

Political agreement was reached on 10 March on the EU's political target (Article 4), to be increased to 11.7 % for final energy consumption. The final texts are not yet available. They include Annex 1 and a formula showing which

indicative target for Belgium will be assigned.

However, this is essentially a regional competence and the Belgian contribution to the increase of the EU target will therefore have to be examined at national level when the NECP is updated. As regards energy poverty, the federal level is only responsible for pricing policy. There is therefore no federal energy savings target in this context.

More information on the measures provided for in point 3.2.

Flemish Region

Energy efficiency is the main spearhead of Flemish energy and climate policy, which aims to reduce dependence on fossil fuels, through efforts in all sectors. The commitment to energy efficiency reduces energy demand and is a cost-effective and sustainable way to reduce greenhouse gas emissions. In addition, energy efficiency saves households and businesses, making it a measure that benefits both the climate and the economy.

Region Walloon

One of the five guiding principles of PACE is to “use energy and resources efficiently and increase energy efficiency”. Reducing GHG emissions in our territory presupposes a reduction in absolute terms of our energy and resource consumption through improved **energy efficiency** and, as highlighted in the latest IPCC report³⁴, the transformation of our lifestyles towards more efficient energy and resource use. This plan provides solutions and offers support and options to accompany such a change in mobility, consumption, food and production practices not only for citizens, but also for public, non-profit and private sector actors. Many measures are based on a significant improvement in energy efficiency, i.e. to consume less for the same use, whether through the massive renovation of buildings and the development of renewable heat in buildings, by supporting energy efficiency in industrial processes, the circular economy and eco-design, or by electrification of some of the means of transport.

<u>Thematic</u>	<u>Objectives 2030</u>	<u>Main measures</u>

³⁴ 6^e report of the Intergovernmental Group on Climate Change, Part 3, See Summary for policy makers: https://report.ipcc.ch/ar6wg3/pdf/IPCC_AR6_WGIII_SummaryForPolicymakers.pdf

Efficiency Energy	— 29 % of final consumption compared to 2005 ³⁵	Introduction of step-by-step and ambitious rules for renovation and nine Mobilisation Of Stakeholders Coaching and facilitation of funding for different audiences Technical support facilitating decision-making Improvement from the performance energy of heritage assets Improving vehicle performance Voluntary agreements with companies

Brussels Capital Region

As regards energy in the building, in line with the Climate Order³⁶, the BCR commits by 2050 to:

- Reduce the average primary energy consumption of the entire stock of residential buildings located on the territory of the Region to 100 kWh/m²/year;
- Move towards zero emissions³⁷ for heating, domestic hot water, cooling, lighting, and electricity in the entire tertiary building stock.

To this end, most of the actions aimed at reducing the energy consumption of buildings are included in the strategy for reducing the environmental impact of existing buildings in Brussels for 2030-2050³⁸ (known as the Brussels renovation strategy RENOLUTION) approved by the Brussels Government on 25 April 2019, the aim of which is to bring the building stock towards a high level of energy performance by 2050. The strategy foresees a significant increase in the renovation rate; turning around 1 % at present, this rate is to be tripled in the coming years.

As an alternative to the establishment of an energy efficiency obligation scheme, a series of existing or new measures had been selected by the Government of the Brussels-Capital Region in order to achieve energy savings for final customers. The annual amount of new energy savings achieved through this approach is equivalent to the amount of new energy savings required under the default approach. These measures, notified to the European Commission³⁹,

³⁵It should be noted that, in the context of this text, the methodological consistency of accounting for heat from cogeneration with the European methodology (IEA/Eurostat) gives a total of 104.6 TWh for energy efficiency, consistent with PACE. Given that the figures for the reference year 2005 have also been corrected by this alignment, the final percentage is 30 % in the technically updated projections in this text.

³⁶ https://www.ejustice.just.fgov.be/cgi/article_body.pl?language=fr&caller=summary&pub_date=21-06-25&numac=2021042326

³⁷This concept is defined as: 'very high energy performance, requiring only zero or very low energy consumption, does not produce any on-site greenhouse gas emissions from fossil fuels and does not produce any operational greenhouse gas emissions or a very small quantity, as specified by the Government.'

³⁸ <https://environnement.brussels/thematiques/batiment-et-energie/bilan-energetique-et-action-de-la-region/renolution-une-strategie-ure-bati-Brussels>

³⁹Notification MNE (2021) 02787 of 22/04/2021.

are prolonged in this NECP.

Energy security dimension

Through targeted objectives and policies that promote energy efficiency and ensure increased local renewable energy production, regional targets contribute to enhancing energy security. Energy security is also a competence of the federal government. The text provided under this chapter is therefore the responsibility of the Federal Government.

Increasing diversification

The current context is a profound change in energy supply and security. The war in Ukraine has led to a diversification of oil and gas importing countries. Thanks to its central position in Western Europe and its highly connected network infrastructure with neighbouring countries, our country occupies a unique position as a commercial crossroads, both for electricity, natural gas and oil. Our country is able to channel large quantities of electricity, natural gas and oil, which is an important asset for our own energy supply.

Despite the focus on energy efficiency and the steady increase in the share of renewable energy sources, Belgium remains heavily dependent on imports of primary energy sources to meet domestic demand. Belgium aims to diversify its supply in terms of energy sources, origins and routes. In addition to ensuring access to these resources, the federal government aims to reduce dependence on fossil fuels by accelerating the energy transition. Security of supply, affordability and sustainability go hand in hand.

In response to the current crisis, the federal government is taking measures to ensure security of supply in the short and long term. To limit the impact on household bills, the federal government has taken measures worth more than EUR 4 billion, such as a basic federal energy package, the granting of the temporary VAT reduction or the extension of the social tariff.

The technologies and products needed to achieve the energy transition, including battery technology, wind turbine manufacturing and solar photovoltaic panels, will increase demand for several scarce raw materials. International dependence on these products is high. A knowledge centre has been set up within the Federal Institute for Sustainable Development (IFDD) to address critical material issues.

Electricity

Total electricity demand today accounts for 17.5 % of total energy demand in Belgium. Electrification of transport, heating and industry is expected to increase the share of electricity in the energy mix.

Electricity generation capacity shall be continuously monitored in order to quickly detect any disruption and take the necessary measures. As part of the provision of sufficient generation capacity, the capacity remuneration mechanism (CRM) is improved in a sustainable way to meet current needs, such as the challenges of the French nuclear park, the energy challenges in Germany and the war in Ukraine. In this context, a new study on security of supply is being prepared, examining all additional options to enhance our country's security of supply until 2030, if necessary. The legislative framework for electricity generation, storage and transmission is being developed and updated. Renewable energy sources onshore and offshore are being developed at an accelerated rate, for example the development of 3,1-3.5 GW of offshore wind energy in the Princess-Elizabeth area (SPA) in the North Sea. In addition to increasing production capacity, efforts are also being made to reduce domestic consumption, for example by launching information campaigns with advice on energy saving (see the Energywatchers campaign, among others)⁴⁰. The accompanying framework for the decommissioning of nuclear power plants and the decommissioning of existing nuclear power plants is monitored, and existing expertise is used and maintained to the fullest extent. To ensure

⁴⁰ EnergyWatchers website, part of Climat.be (Climate Change Service), 2022. <https://www.energywatchers.be>

greater energy independence from fossil fuels and a diversified supply, the Federal Government has started the process of extending 2 GW of nuclear reactors, Doel 4 and Tihange 3, for a period of 10 years.

Crisis policy deserves particular attention. The reform of the electricity crisis policy will continue, focusing on the interaction between natural gas and electricity.

the event of a crisis. The legislative framework, the division of tasks and the communication strategy will be updated and streamlined.

Oil

The share of petroleum products in final energy consumption in Belgium is on average 49 %. The measures taken in the context of the COVID-19 crisis have been felt, but its share of total final energy consumption remains very dominant, 47.5 % in 2019 and 46 % in 2020.

Belgium's international energy dependency is around 80 %. Oil and petroleum products account for a significant share of energy imports, i.e. almost 60 %. The supply of these products in Europe changed radically in 2022. European companies have managed to maintain the level of commercial stocks, notably thanks to imports of crude oil from Africa and the Middle East and imports of finished products such as gas oils from China, India and the Middle East.

International crisis management procedures will be developed and refined. For example, the focus is on monitoring and identifying priority users of petroleum products in the event of a crisis.

Gas

The share of natural gas in primary energy consumption was 26.4 % in 2021. The structure of gas flows in Belgium has changed profoundly due to geopolitical tensions. Zeebrugge has thus become a central access point for LNG, both for internal use and for supply to neighbouring markets. To continue to play this role in the future, efforts will be made to increase regasification capacity in Zeebrugge. The Transmission System Operator (TSO) will also strengthen the pipeline network, including for the central role of storage capacity in Loenhout. Given the planned phase-out of Dutch gas production in Groningen, Belgium is forced to convert the entire transmission and distribution network and supply it with H gas. This conversion will improve security of supply, water quality and air quality as there are overall more available H gas sources.

Since Russia's invasion of Ukraine, the federal government has also strengthened crisis policies for natural gas. Belgium complied with the voluntary reduction of natural gas consumption, updated emergency plans, defined different categories of customers and determined the share of consumption of protected customers (households and essential social services). Work continues, in collaboration with all relevant partners, on the emergency plan for the security of natural gas supply.

International cooperation

Belgium will continue to engage in European and international fora to ensure security of supply, for example by advocating for joint purchasing, price caps in the wholesale gas market and changing the electricity market model at EU level. In addition, additional actions are also undertaken in the area of 42.

energy and material diplomacy, both at political and administrative level, at global and regional level. These actions are carried out through bilateral and multilateral contacts and through international organisations and/or consultation platforms such as the EU, IEA, IRENA, Penta Energy Forum, North Sea Energy Cooperation⁴¹, North Sea Summit, Gas Coordination Group, MoUs with Norway and the UK, etc.

Dimension of the internal energy market

Transit and flexibility

Belgium is seeking to integrate as much as possible into European networks in order to promote better harmonisation of electricity prices for households and industry. In terms of interconnections, Belgium already plays a crucial role as a transit country for gas (and tomorrow for sustainable and climate-neutral renewable molecules via existing networks where possible and above all the development of a Belgian and European hydrogen backbone) and at the same time we commit to strengthening electricity interconnections, including offshore wind energy.

In order to give Belgian users permanent access to renewable energy at the lowest possible price, Belgium is actively working on the integration of its energy system so that the different energy sectors complement each other. In this process, flexibility will also be crucial. This can be done in different ways: matching supply and demand, increasing interconnection with other Member States, making energy grids smarter, creating energy storage opportunities for short or longer periods. The needs for digitalisation and investment in networks will also increase.

In addition, Belgium is striving to give full opportunities to new players, such as active consumers, energy communities and citizens' cooperatives, so that citizens, local authorities and businesses can play a central role in the future energy market.

Federal State

Belgium plays a crucial role as a transit country for gas. Its ambition is to strengthen this role, including for electricity. In addition, Belgium has made a lot of effort in recent years to increase its electricity interconnection rate with its neighbours. The interconnection rate was around 33 % in 2021, which is above the European targets. Subject to the approval of the new Federal Development Plan 2024-2034 in accordance with established procedures, we commit to strengthen and expand our activities:

- The offshore network via the Nautilus interconnection between the United Kingdom and the artificial energy island in the Princess Elisabeth area and a similar TritonLink between the island and Denmark.
- The terrestrial network of interconnections such as Lonny (FR) – Achêne (BE) – Gramme (BE), the Van Eyck (BE) axis (BE) and 'Bracht' (NL) and a second connector between Belgium and Germany.
- Long-term development of land corridors in the North Sea region and enhanced interconnection between Belgium and Luxembourg.

To ensure the performance and sustainability of the internal electricity grid, the planning, regulation and technical framework will be updated within the relevant international framework. Existing interconnections and backbone are being developed and strengthened. At federal level, the potential of hydrogen technologies to convert excess renewable energy and use it in energy and economic processes is being explored. In order to enhance energy infrastructure, legal certainty and investment security for projects will be increased through simplified permit

⁴¹ See below under 3.1.2. ii. or via The North Sea Summit, northsummit23.be, 2023. <https://northseasummit23.be/> <https://northseasummit23.be/>

applications. The response to the request will also be further explored as a measure, including through the Pentalateral Energy Forum.

With the increasing share of intermittent energy sources and the variability of demand, the need for flexibility on the energy grid will only increase. This will be addressed, in particular through the flexible use of generation units, demand management, electricity storage and the reinforcement of interconnections. Belgium will take steps to attract adequate investment to maintain a complementary energy mix.

Flemish Region

The increasing share of renewables in the energy mix is also accompanied by some specific challenges to prepare our energy system and infrastructure. For example, renewable energy sources such as solar and wind are inherently more variable and less predictable, and green electricity will more often be produced locally and in a decentralised way. This increases the demand for digitalisation, flexibility and smarter network management, as well as specific network investments.

The necessary flexibility can be ensured in several ways. For example, electricity consumption can be increasingly aligned with periods when a large part of renewable electricity generation is available, interconnections between countries can be further developed, and efforts should be made to further develop short and long-term energy storage options. Long-term energy storage will also become indispensable, especially in order to cope with seasonal variations in supply and demand.

This makes it possible to build a sustainable energy system that guarantees security of supply at an affordable and competitive price. The latter is essential to maintain public acceptance.

Region Walloon

<u>Thematic</u>	<u>Objectives 2030</u>	<u>Main measures</u>
Market integration		Development of smart grids, incentives to shift consumption and local self-consumption Development of energy sharing within a building and through energy communities Ensure the supply of sufficient energy at an acceptable price to all households

Energy poverty

Belgium has maintained and stepped up its attention to the fight against energy poverty. This is a top priority in the current context of high energy prices. The Belgian policy framework is therefore designed to take into account the potential impact on vulnerable groups and adequately mitigate any negative effects.

Federal State

Tackling energy poverty is a top priority in the current context of high prices. A social tariff for electricity and natural gas has been in place since 2004. These measures have been strengthened and expanded in the context of the current crisis. Structural measures are under preparation to better coordinate and strengthen the different social energy funds. On the other hand, the context of high prices has also led to overprofits for some energy companies. A cap was imposed at both European and Belgian level for electricity, complemented by a solidarity contribution for other vectors.

In the same context, federal taxation on energy bills has been reformed. VAT on supplies of natural gas, electricity and heat through district heating networks under residential contracts will be definitively reduced to 6 %. Professional users are excluded from this reform. This measure was accompanied by a reform of excise duties on these products, which provides that the federal share of the energy bill will not increase beyond the 2021 prices. The excise reform provides a flexible policy tool that can be used to support the energy transition, with the intention of gradually transferring half of the excise duties on electricity to excise duties on fossil fuels (natural gas and propane). All these combined measures will free up resources to help citizens and businesses cope with their high energy bills.

Flemish Region

Although the Flemish Region is one of the most prosperous regions in the world, energy poverty has proven to be also a long-lasting reality. The Energy Poverty Platform publishes an annual Barometer. It measures energy poverty using three indicators:

1. Households in 'measured energy poverty' spend too much of their disposable income on energy costs (11.5 %)
2. Households in 'hidden energy poverty' significantly decrease their energy consumption, resulting in their energy costs being abnormally low compared to households living in a similar situation (3.6 %).
3. Households in 'subjective energy poverty' report that they are struggling financially to heat their homes sufficiently (1.8 %).

Taking into account the overlaps between these categories, 15.9 % of Flemish households faced some form of energy poverty in 2020 (445 000). A large part of them are single-parent households and isolated (elderly) people. Around 19 % of households in energy poverty have at least one employee. In other words, having an income from work does not automatically protect against energy poverty. Tenants, especially social tenants, are overrepresented in energy poverty figures.

The intention to monitor affordability and adherence to the transition is a last strategic line of action in all dimensions of the plan. We are firmly in favour of **a climate policy that benefits every** Flamand and avoid exacerbating existing economic and social inequalities.

Indeed, there is a risk that policy measures, such as financial incentives for renovation or investments in renewable energy, disproportionately benefit the strongest shoulders of our society. On the other hand, vulnerable groups risk being left behind as they often do not have the resources to invest.

The policy framework must therefore be designed in such a way as to take into account the potential impact on vulnerable groups and adequately mitigate any negative effects.

Region Walloon

Access to energy for all and the fight against energy poverty are at the heart of the Walloon energy policy. All policies and measures in the plan set out in Chapter 3 aim at reducing energy poverty. In particular, the chapters, dealing with the various aspects of energy policy, provide for many mechanisms and actions for precarious or low-income households. These include financial support for the renovation of housing, the fight against energy passives (very poorly isolated housing), coaching and personalised information, measures to ensure respect for rights and the provision of sufficient energy at an acceptable price to all households, etc.

Brussels Capital Region

Energy poverty is a reality that hits 27.6 % of households in the CBR42, while 31.4 % of the Brussels population lives in a household with income below the at-risk-of-poverty threshold43. The actions of PACE cannot be an aggravating factor for threats to access to energy and housing.

In the context of the increase in targets, it is necessary to strengthen:

- Tackling energy poverty.
- The fight for affordable quality housing for all and 'renovating'.

International cooperation

Federal State

Belgium encourages stakeholders to submit cross-border cases in order to better integrate electricity markets. Projects can build on the TEN-E network, the Connecting Europe Facility (CEF) and other relevant regional partnerships such as Projects of Common Interest (PCIs). At regional and European level, the gradual integration of the intraday and balancing markets will be continued in order to increase liquidity, security of supply and system flexibility.

Dimension of research, innovation and competitiveness

Research and innovation policy, at federal and regional level, linked to the European Energy Union aims to support the overall objectives of European energy policy in terms of sustainability, energy security and competitiveness. In addition, research and innovation policy stimulates innovation in and by Belgian companies in order to increase their competitiveness. Belgium, the federal level and the regions believe that there is a need for a common European approach to achieve the European Strategy for a Resilient Energy Union and a policy climate touring towards the future.

Belgium committed to spend at least 3 % of its gross domestic product on R & D. Flanders spent 3.6 % of its overall Gross Domestic Product on R & D in 2021, Wallonia 3.6 %, Brussels 2.49 %.

Federal State

Research and innovation

In connection with the PFEC, in accordance with the Recovery and Resilience Plan from 2020 onwards, 10 % of the R & D budget will be allocated to climate and energy projects44.

In 2021, federal public authorities will already have achieved this target with 9.45 % of federal public spending on R & D in energy and 0.7 % for the environment, i.e. a total of 10.16 %. The latter figure reaches a high but imprecise

42Coene and Al. *Energy and Water Poverty Barometers 2019*, 2021.

43IBSA, *Socio-economic Panorama 2021*, December 2021

Recovery and Resilience44 Plan for Belgium, Cabinet of the Secretary of State for Recovery and Strategic Investments, responsible from the Policy scientist, June 2021. <https://dermine.belgium.be/sites/default/files/articles/FR%20-20Plan%20national%20For%20%20%20and%20%20%20%20CC%81silience.pdf>

14.42 % range by including land exploration/exploitation categories and agriculture that include but are not limited to climatic aspects. Federal public R & D expenditure accounts for 1.71 % of Belgian public expenditure (federal, regions, communities) on energy and 0.57 % for the environment, a cumulative total of 2.31 %. Including agriculture and land exploration/exploitation leads to an upper but imprecise range of 2.61 % of Belgian public expenditure.

Investment is therefore at the heart of federal innovation policy. The energy transition is an opportunity to build tomorrow's economic fabric through innovation and recovery plans. In the National Recovery and Resilience Plan and the Recovery and Resilience Plan, significant resources are allocated to energy infrastructure.

To further support the crucial transition, the Energy Transition Fund aims to encourage and support energy research, development and innovation – within the framework of federal energy competences. Since the Fund was launched in 2016, 84 projects have already been subsidised.

Hydrogen is one of the key levers towards a green, low-carbon energy mix. The Federal Government wishes to maintain and strengthen the leading position of Belgium and the Belgian industry in H2 technologies and H2 derivatives. The Federal Government welcomes European initiatives to establish and maintain a liquid hydrogen market. The Federal Government undertakes to contribute to this market by supporting import infrastructure on the one hand and the further development of a regulated transport network for domestic transport and transit, on the other. Both initiatives help to make Belgium an import and transit centre and are a major asset in attracting import flows.

Belgium considers it a priority to maintain its knowledge and expertise in the nuclear field, in particular in the field of responsible management of radioactive waste and spent fuel, and to avoid placing unnecessary burdens on future generations. Belgium wants to remain a world-class player, for example in research on medical radioisotopes, nuclear medicine or particle accelerator technology. Belgium will also continue its R & D and innovation activities in nuclear research and maintain and develop a high level of expertise. For example, the focus is on research for small modular reactors, for which a budget of EUR 100 million is foreseen. For example, it engages in research on small modular reactors, for which the Council of Ministers on 23 December 2021 has earmarked a budget of EUR 100 million.

Competitiveness and purchasing power

To ensure the competitiveness of our businesses and the purchasing power of consumers, the energy standard provides for two things: on the one hand, the replacement of a series of federal taxes and levies on electricity and natural gas bills by a special excise duty on electricity and a special excise duty on natural gas and, on the other hand, an annual study by the regulator (CREG).

The increase in the special excise duty on electricity and natural gas and the abolition of other federal taxes and levies on electricity and natural gas bills were provided for in the programme of 27 December 2021.

The annual study by the CREG of energy costs with our neighbouring countries was introduced by the Law of 28 February 2022 (Articles 7, 13 & 14) and compares the various cost components of the electricity and natural gas bill in Belgium with those of our neighbouring countries. This study derives, where appropriate, from CREG recommendations with which the government can start working.

This process takes place as follows:

- For 15 May: an annual assessment by the CREG of the level of the different cost components of electricity and natural gas bills and a comparison of these with those of Germany, the Netherlands, France and the

⁴⁵Final data 2021 BELSPO, TABLE 3: View OF PUBLICS BUDGETARY BUDGETARY CREDITS OF THE BELGES AUTORITES BY OBJECTIFS NABS (in% RELATIVE), data provided by BELSPO for the Climate Service on 23/03/2023.

United Kingdom. The study uses the categories of consumers (type of economic activity and amount of consumption) determined in advance by Royal Decree on a proposal from the CREG, after consultation in the Council of Ministers;

- By 1 July: opinion of the CREG to the Minister, after consulting the Gas and Electricity Advisory Council and the Central Enterprise Council. The opinion makes recommendations on measures to be taken to safeguard the competitiveness of businesses and the purchasing power of consumers. These recommendations concern the cost elements of the energy bill that fall within the federal competence in the field of energy.

Funding for research and innovation related to the Energy Union

R & D funding instruments

The instruments that contribute to the financing of research and innovation related to the Energy Union are the Energy Transition Fund, the investment premium for companies, the tax credit for research and development, and the Recovery and Resilience Plan.

At European level, Horizon Europe, the European Innovation Fund, the European Investment Bank, the European Investment Fund (EIF), EFRO, LIFE Clean Energy Transition and Connecting Europe Facility Energy are used. They are listed in more detail in points 3.5 (iii) and 5.3.

Financing measures, including the use of EU funds

The financing instruments that are not limited to the dimensions of the Energy Union but can contribute to them are the premium for innovation and scientific research under the Recovery and Resilience Plan described in Chapter 3.5 iii for R & D. The many European cross-cutting instruments that can be deployed, including InvestEU, EIC accelerator, innovation support (EUREKA, EUROSTARS...) and project support (IPCEI...) are all described in section 5.3 “Overview of investment needs”.

Clean energy and long term objectives

A sustainable and climate neutral energy system by 2050, with more electrification (mobility and heat), more controllable capacity and more storage, from a technologically neutral perspective by enabling sustainable and CO2 neutral production opportunities, is being developed. Instruct the Minister for Energy to develop an energy vision and strategy for our country in consultation with the Länder and within a European framework. More details in section 1.2.

On 29 October 2021, the Federal Government approved its first hydrogen strategy. This document announced for the first time Belgium’s ambitions in the field of renewable molecules and the role of Belgium as a hub in Europe. Since then, many steps have been taken. On 12 October 2022, the Federal Government approved an update of the strategy to reflect the state of implementation. In the light of recent developments in the sector, additional measures are announced. The Federal Hydrogen Strategy aims to use hydrogen and renewable molecules to make certain applications climate-neutral when electrification is not economically viable or technically realistic. This concerns mainly industry and freight transport, aviation and maritime transport.

The strategy consists of four pillars for which several concrete measures have been identified. The four pillars are:

1. Position Belgium as a hub for the import and transit of renewable molecules in Europe.
2. Strengthen Belgian leadership in hydrogen technologies.
3. Creating a strong hydrogen market.
4. Invest in cooperation for successful implementation.

More information on this, including concrete measures, can be found at: <https://economie.fgov.be/fr/themes/energie/transition-energetique/strategie-federale-belge-pour>

Flemish Region

In terms of research, innovation and competitiveness, we turn the energy and climate challenge into an economic opportunity. Flanders intends to play a leading role in research and innovation, both through basic research and strategic research focused on the development of applications, products and processes that offer solutions and can meet the climate goals set by Flanders and Europe. Flanders has all the assets to play this role: a high level of education and a high level of scientific and technological expertise in its universities, knowledge institutions and businesses.

In addition to research policy, Flanders is also committed to the practical implementation of new technologies and processes, bringing them to the market and making them widely accessible to users, for example through pilot and demonstration projects.

These implementation policies are crucial for the success of research policy, as they ensure that new technologies and processes are effectively adopted on a large scale.

As an industrialised region, Flanders continuously focuses on the competitiveness of its industrial companies, both in terms of energy prices and production costs in general.

Region Walloon

<u>Thematic</u>	<u>Objectives 2030</u>	<u>Main measures</u>
Research, Innovation	Public budget of EUR 110.000.000/year for energy – climate	Research funding Cooperation

Table 12: Research and innovation objectives and measures for 2030

Brussels Capital Region

Energy and climate transition means innovation and experimentation. As highlighted in the 2019 General Policy Declaration, research, development and innovation are important drivers of economic growth but also levers to improve the welfare of citizens. The Region must therefore step up its investment there.

The new PRI⁴⁶ (Regional Innovation Plan) adopted by the Government in June 2021 is now the reference framework for the RBC's research, development and innovation policy for the period from 2021 to 2027.

The new RIS sets out a framework for all innovators to benefit from an environment that promotes the conversion of innovative ideas into concrete results contributing to improving the well-being of Brussels and their environment.

Concretely, the new RIS defines the 6 strategic innovation areas reflecting the priority sectors in which public support for research and innovation will be concentrated, some of which are directly linked to the NECP objectives:

⁴⁶ https://innoviris.brussels/sites/default/files/documents/innoviris_plan_regional_innovation_pri_digital_fr.pdf

- Climate: building and resilient infrastructure.
- Optimal use of resources.
- Efficient and sustainable urban flows for inclusive urban space management.
- Advanced digital technologies and services.

In PACE, the Government undertakes to encourage air, climate and energy innovation measures in the light of the PACE's objectives by innovating in the buildings and transport sector.

Other additional aspects related to the summary and the 5 dimensions

Belgium responded to the specific CSR recommendations and contributed to the CESAR database. In particular, by adopting energy policies that mitigate the social impact of high energy prices and by developing a winter plan that promotes energy security, accelerating the deployment of renewable energy, notifying additional energy efficiency measures and taking emergency energy saving measures in public buildings during the winter of 2022-2023.

Federal State

Belgium obtained advice from consultants under the additional IAC call for proposals (Technical Support Instrument) to identify investments that would make Belgium less dependent on fossil fuel imports from Russia (cfr. National report – to be finalised). This advice serves as inspiration for the REPowerEU chapter to be drafted, attached to the Recovery and Resilience Plan (RRF).

III. Summary table of the main objectives, policies and measures of the plan

IV. Decarbonisation dimension – Greenhouse gas			
	ETS	ESR	LULUCF
Objective BE 2030	/	— 47 %	994 kt Co ₂ -eq total sequestration
BE WAM 2030	— 45 %	— 42.6 %	1,3 MT Co ₂ -eq total sequestration

Decarbonisation dimension – renewable energy	
Wam 2030 nominator (GWh)	82209
WAM 2030 denominator (GWh)	379541
WAM 2030 %	21.7 %

Result Formula Annex II Governance Regulation	34 %

Energy efficiency dimension (Article 4)			
Wam scenario	2021	2030	Formula Annex I Directive on energy efficiency (2030)
Primary energy consumption	49.073	36.522 (-4.7 %)	33.769 (-11.9 %)
Final energy consumption	34.504	29.934 (-9.5 %)	28.783 (-13 %)

Energy efficiency dimension (Article 8)	
Objective BE	267.65 TWh
BE WAM 2030	156.762 TWh

Table 13: Summary table of the main objectives, policies and measures of the plan

Belgium's international commitments

Belgium joins the international ambition commitments agreed in Glasgow.

- Reduce coal-based electricity generation: Belgium has not produced coal-based electricity for some time and is a member of the Powering Past Coal alliance. At international level, Belgium has also signed the “Declaration on International Support for the Clean Energy Transition” of COP26. On the basis of these international commitments, the policy of Credendo (the Belgian export credit agency) and Belgium's position in the governing bodies of multilateral development banks have been adjusted.
- The four Belgian entities are taking steps to phase out fossil fuel subsidies.
- Reduction of emissions other than CO₂: CFR EU Methane Strategy. Belgium has also signed the Global Methane Pledge internationally, joining the effort to reduce global methane emissions by 30 % by 2030 compared to 2020 levels.

Under the partial burden-sharing agreement, the four Belgian entities committed to make a minimum contribution to international climate finance in the period 2021-2024. As a result, Belgium's total contribution to international climate finance will be at least EUR 531 million.

1.2. Overview of the current political situation

i. National and European energy system and policy context of the national plan

National policy context of the plan

Belgium is a federal state, with the regions and the federal government exclusively responsible for aspects of energy and climate policy. Regions have important powers in the areas of rational energy use, on-shore renewable energy

production, public transport (except rail), transport infrastructure, spatial planning, industrial emissions, agriculture and waste. The federal government is responsible for offshore wind energy production, energy security and some elements of taxation.

Taking into account the federal structure of Belgium and the division of competences, several structures have been created to promote consultation and cooperation between the different levels of government and to ensure the coherence of the actions of the federal state and its entities. These structures are explained in point 1.2.iv.

Under European obligations, a series of cooperation agreements have been concluded for the distribution of European energy and climate targets for 2020 and the implementation of the provisions of the Kyoto Protocol (national “burden-sharing” agreements to be defined in inter-federal cooperation agreements).

For the period 2021-2030, a partial agreement was reached in November 2022. That agreement determines the distribution of revenues from the auctioning of ETS allowances for the years 2021 and 2022, the contribution to international climate financing between 2021 and 2024 and the determination of the contribution from 2021 onwards of each contracting party to maintaining Belgium’s share of energy from renewable sources at 13 % of gross final consumption of energy, in accordance with Directive 2018/2001. The partial political agreement is currently being developed into a legal cooperation agreement.

The conclusion of a new internal cooperation agreement between the regions and the federal state to achieve the 2030 climate and energy targets is a priority, with a view to enshrining the legal responsibilities of the various actors involved in achieving the Belgian targets, allocating revenues from the auctioning of emission allowances and using it to finance their climate policies.

Federal State

Belgium fully supports the Paris climate ambitions and the European Green Deal. The ambition is to reduce greenhouse gas emissions by 55 % by 2030 and to make our country climate-neutral by 2050⁴⁷.

The energy policy priorities set by the current federal government can be summarised as follows:

- Ensure security of electricity supply and take the necessary measures to improve generation adequacy.
- Contribute to the completion of the European internal energy market and the development of strategic and interconnected European energy networks, while aiming at increasing the flexibility potential of the energy system.
- Provide a stable and favourable investment environment that encourages innovation and provides predictability through long-term guarantees.
- Monitor energy prices to ensure that energy bills are affordable for industry and households, while preserving competitiveness.
- Create a long-term inter-federal energy vision and an “energy pact” between the federal government and the regions.

Responsibilities for climate policy are divided between the federal government and the regions (Flanders, Wallonia and Brussels-Capital Region).

By implementing accompanying policies on taxation, biofuels, bicycles, product standards, energy efficient federal public buildings and railways, the government will support the regions in their climate and air quality policies. Together with the planned offshore wind energy, these accompanying policies will constitute the federal contribution to the achievement of Belgium’s objectives under the EU climate and energy package for 2020 and 2021-2030⁴⁸.

⁴⁷ Coalition Agreement, Federal Government, 30 September 2020. https://www.belgium.be/sites/default/files/Regeerakkoord_2020.pdf

⁴⁸ Federal Energy and Climate Plan (PFEC); Federal contribution to the National Energy and Climate Plan 2021-2020 as approved by the Government on 29

On 2 April and 8 October 2021, the Federal Government took a series of decisions to strengthen the federal governance framework and monitor the implementation of federal climate policy. This resulted in the introduction of a federal policy cycle based on roadmaps followed every six months and evaluated annually. Progress reports prepared by the relevant government departments and institutions are compiled annually in a synthesis report which shall be made public.

Flemish Region

Flanders is one of the regions of the Belgian federal state. The regions have important competences in the areas of rational use of energy, renewable energy, public transport, transport infrastructure, spatial planning, industrial emissions, agriculture and waste. The Law of 8 August 1980 lays down the division of powers.

The current Energy and Climate Plan for Flanders (VEKP) includes the policies and measures taken and planned within the Flemish competences, as well as the objectives and targets put forward by Flanders. This plan constitutes the Flemish contribution to the National Energy and Climate Plan (NECP).

Region Walloon

- **Walloon legal sources**

This plan (Walloon contribution to the National Energy Climate Plan) comes from the PACE, which is part of the implementation of the **Climate Decree** of 19 February 2014 and which aims to establish targets for reducing greenhouse gas emissions and ambient air quality and to put in place the instruments to ensure that they are actually achieved. In this respect, the text requires the Government to establish a PACE developing the measures necessary to comply with the emission budgets.

A PACE 2016-2022 had been adopted by the Walloon Government on 21 April 2016. A **first version of PACE 2030** (Air Climate Energy Plan by 2030) was adopted by the Walloon Government on 4 April 2019 and was based on a target of reducing greenhouse gas emissions from non-ETS sectors by 37 % compared to 2005, in order to contribute to a Europe-wide emission reduction target of -40 % to 2030 compared to 1990. Furthermore, the final version of the Walloon contribution to the National Energy Climate Plan, as transmitted to Europe, was approved by the Walloon Government on 28 November 2019.

The **Walloon Regional Policy Declaration 2019-2024** (DPR) lays down the following provisions: “In order to achieve the climate target of a 55 % reduction in greenhouse gases by 2030, the Government will finalise and increase by the end of 2019 the objectives and measures of the Air-Climate Energy Plan 2030 (PACE) in order to enable it to be implemented immediately” (p. 55). And the following provisions: “The Government will define an energy vision taking into account the abandonment of nuclear energy by 2025, the shift from fossil fuels to 100 % renewable energy by 2050 and the desire to significantly develop energy efficiency, in line with the Energy and Climate Pact” (p. 59).

Furthermore, the DPR also provides that ‘an adapted trajectory setting precise targets for energy efficiency and the deployment of renewable energy, sector by sector, will be developed as part of the adoption of the PACE measures aiming at a 55 % reduction in greenhouse gas emissions in 2030. The energy vision will cover both electricity, heat and transport, taking into account the cost, technical potential and acceptability of technologies. The energy vision will focus on a transition to a decentralised and decarbonised energy system in cooperation with the federal authority, the other regions and the European Union, taking into account security of supply, stability and optimisation of costs and the reduction of greenhouse gas emissions and other air pollutants.” (p. 60).

On 21 March 2023 the Walloon Government therefore approved a new PACE 2030, which included raising the

objectives set out in the PRD and new policies and measures to achieve them.

This plan is therefore based on the new PACE 2030. In this chapter, the different construction and consultation stages as well as the monitoring arrangements refer to PACE. In Chapter 2, the Walloon objectives determined under the PACE are taken up and put into perspective with the methodological and statistical changes that have taken place since then; and in Chapter 3, reference is made to the numbering of PACE measures and actions.

Belgian institutional framework

Wallonia is a federated region with legislative power, with its own bodies and powers within the Belgian federal state.

As regards energy, **Wallonia has jurisdiction** on its territory with regard mainly to the distribution and local transmission of electricity, public gas distribution, heat distribution networks, renewable energy sources and the rational use of energy (ERUs). The Federal State remains responsible for matters whose technical and economic indivisibility requires uniform implementation at national level, such as the national electricity sector equipment plan, energy transmission and production, tariffs or product standards. As regards transport and mobility, Wallonia is responsible for road, inland waterway, road safety and mobility infrastructure. The Federal State is responsible for rail transport.

Climate change is **cross-cutting** and goes beyond energy or the environment in the strict sense. It is integrated into transport, taxation, energy, agriculture, etc. This results in intertwined competences between the different levels of government, both intrawallon and at national level. This complex division therefore requires close coordination structures between the different responsible authorities.

All the policies and measures proposed in this document are mainly related to regional competences. However, in view of the numerous interactions between the **different levels of government** at national level, the implementation of a large number of regional policies and measures and the achievement of the objectives set out in Chapter 2 will only be possible if complementary, accompanying or support measures are taken by the federal level.

Dealing with the international context

Paris Agreements and IPCC reports

In December 2015, the **Paris Agreement**, concluded at COP21 of the United Nations Framework Convention on Climate Change, endorsed the global goal of limiting the temperature increase above the pre-industrial age to 2 °C, even aiming at limiting the temperature increase to 1.5 °C. The Parties also committed to increasing adaptability and resilience to climate change and a just transition to a low-carbon society.

The^{3th} volume of the 6th **IPCC (Intergovernmental Panel on Climate Change)**^{report} on mitigation actions, published on 4 April 2022, reiterated that drastic, immediate and global action is required in all sectors to avoid exceeding the 2 °C warming limit. Average annual emissions over the period 2010-2019 have never been more important in humankind's history. At unchanged policies, GHG emissions will continue to rise beyond 2025, leading to warming above 2 °C. To achieve the target, models require emissions to peak in 2025 before decreasing. In addition to fossil fuel reduction or energy efficiency measures, the latest IPCC report highlights the importance of sobriety in all areas. Sobriety is defined by the IPCC as the daily set of measures and practices that avoid the demand for energy, materials, land and water while ensuring the welfare of all human beings within planetary boundaries.

United Nations Framework

The 2030 PACE is part of the respect, support and strengthening of the challenges set out in the **United Nations 17 Sustainable Development Goals (SDGs)**, and shares the spirit of the SDGs in their holistic approach. The PACE is therefore a tool to implement the SDGs, in particular in terms of combating poverty and inequality (SDGs 1 and 10), promoting sustainable agriculture (SDG 2), gender equality (SDG 5), access to energy (SDG 7), fostering innovation (SDG 9), sustainable consumption and production (SDG 12), climate change (SDG 13) and preservation of ecosystems

(SDG 15). The PACE as a whole but in particular with the adaptation component (see chapter 5) also supports the 7 priority targets of the Sendai Framework for Disaster Risk Reduction: reducing mortality, casualties, economic losses and damage to essential infrastructure; and improving disaster response strategies, early warning systems and risk information and international collaboration.

Brussels Capital Region

Like the other EU Member States, Belgium, and consequently the CBR, is also called upon to step up its climate action and its 2030 GHG reduction target. As early as December 2020, when the Climate Order was adopted at second reading, the Brussels Government expressed its intention to contribute to the increase in European ambition and the additional effort that Belgium would be asked to do. At the time of the adoption of the Brussels contribution to the NECP at the end of 2019, it had been assessed that the measures made it possible to reduce regional direct GHG emissions by 40.1 % by 2030, compared to 2005 levels. The PACE measures will aim to go beyond this, without calling into question the actions contained in the regional contribution to the NECP, which constitute the starting point for a strengthened Brussels climate policy⁴⁹.

In line with the iterative process foreseen in COBRACE, the new PACE aims to be more ambitious than the previous version, but also than the Brussels contribution to the NECP, which it updates.

ii. Current energy and climate policies and measures related to the five dimensions of the Energy Union

Federal State

The Federal Government approved the Federal Energy Strategy on 30 March 2018⁵⁰, in order to achieve the following central objectives:

- Introduce an energy standard so that the different components of the cost of energy in Belgium are not higher than in our neighbouring countries, thus preserving the competitiveness of our businesses and the purchasing power of households;
- Develop a capacity compensation mechanism to attract new investments in production capacity to ensure our security of supply.
- Establish an in-depth monitoring structure to assess the security of supply situation, energy price developments, climate impact and nuclear safety. Based on these recurrent evaluations, additional policy measures could possibly be introduced.
- The development of the integrated national energy and climate plan in cooperation with regional authorities and in close consultation with the Penta Pentilateral Energy Forum Member States.
- Conclude a burden-sharing agreement between the federal state and the regions on the achievement of the 2030 targets (“burden-sharing”).

⁴⁹In addition to strengthening the region’s climate target, the new PACE is a continuation of the reference air-climate-energy regional planning instrument. On 2 June 2016, the Brussels Government adopted the [first Air-Climate-Energie Regional Plan \(PACE\)](#). PACE has its legal basis in the [Brussels Air, Climate and Energy Code \(COBRACE\)](#), amended in 2021 by means of the Climate Order.

⁵⁰Transition class Federal, Government Federal, 30/03/2018.
https://news.belgium.be/sites/default/files/legacy/media/source6892/Federale_energiestrategie.pdf

- Create a clear framework for offshore wind development by defining the support scheme for the last three concessions, identifying additional areas for offshore development in the Marine Spatial Development Plan 2020-2026, and preparing a new support scheme for these additional areas.

These objectives have been an important cornerstone in the development of the former Federal Energy and Climate Plan, almost all of which have been implemented since then.

With, inter alia, the decisions of the Council of Ministers of 18 March 2022 on security of supply and accelerating the energy transition towards greater energy independence, the federal government created a new and updated framework.

An integrated policy framework at national level has been developed with the Interfederal Energy Pact. It was adopted at the end of 2017 and approved by the respective governments⁵¹ in the following months. The vision has been an important source of inspiration for the elaboration of the NECP and for the Belgian energy policy for the period 2030-2050. It also contained actions to be implemented in the short term.

The priorities can be summarised as follows:

- Develop a low-carbon model for electricity generation, consumption and supply.
- Ensuring low carbon heating and cooling.
- Ensuring a sustainable transport system.
- Encouraging innovation for a low-carbon society.

These policy objectives should enable Belgium to ensure a secure, sustainable and consumer-oriented energy model, while limiting costs for households and industry and ensuring compliance with international energy and climate change commitments.

Flemish Region

On 5 November 2021, the Flemish government enacted additional energy and climate measures in a vision note to strengthen the KEP 2019. These measures raised the ambition to a -40 % reduction target in the ESA sectors, as opposed to a reduction target of -35 % in the initial Flemish contribution to the National Energy and Climate Plan 2019.

Region Walloon

The Walloon contribution to the National Climate Energy Plan approved by the Walloon Government on 28 November 2019 lists Walloon policies and measures covering the 5 dimensions of the Energy Union. Some of these measures are already in place, others are in the process of being implemented or are still to be implemented. This plan is currently the subject of an integrated progress report which will make it possible to take stock of the state of implementation of the plan.

⁵¹ The Walloon and Brussels Governments approved the Energy Pact on 14 December 2017. On 30 March 2018, the Federal Government also approved the Energy Pact. On the same day, the Flemish Government welcomed the Energy Pact as an important ambition for further implementation of the necessary energy transition and committed to working towards a feasible, affordable, acceptable, safe and low-carbon energy supply, which guarantees security of supply and contributes to the achievement of climate objectives, within the framework of a broad Flemish approach to energy, climate, spatial planning, mobility, industry, housing, etc.

Brussels Capital Region

The Brussels contribution to the National Climate Energy Plan approved by the Brussels Government on 24 October 2019 lists the Brussels policies and measures covering the 5 dimensions of the Energy Union. These measures are not repeated in their entirety in this section, so as not to add to the text. The remaining measures in the 2019 NECP are included in Chapter 3 with the aim of providing a complete overview of all the measures in place. Some of these measures have already been completed, are being implemented or are still to be implemented. This plan is currently the subject of an integrated progress report which will make it possible to take stock of the state of implementation of the plan.

Adaptation

Federal State

See 1.1 ii.

Flemish Region

See 1.1.ii.

Brussels Capital Region

As regards adaptation to climate change, Article 4 of the European Climate Law provides *that Member States shall ensure continuous progress in improving adaptive capacity, strengthening resilience and reducing vulnerability to climate change, in line with Article 7 of the Paris Agreement. Member States shall develop and implement adaptation strategies and plans that include comprehensive risk management frameworks, based on robust climate and vulnerability baselines and progress assessments.*

This ambition is pursued in the Brussels PACE.

The CBR is particularly vulnerable to climate change.

The heatwave episode in 2019 and the deadly floods in the summer of 2021 highlighted how vulnerable agglomerations are to some climate effects. It is clear that the continuation of the trend of growing urbanisation in recent decades will increase both the risk of flooding, the urban heat island effect and the population's need for water, unless the development of the territory is accompanied by a strengthening of the measures that help to develop its resilience and respond to growing climate-related risks.

The main risks to which the Region is exposed as a result of climate change can be summarised as follows:

- increased risk of flooding;
- increased risk of drought;
- increased risk of violent winds;
- a risk of the Soignes Forest being wasted;
- increased risk of biodiversity loss;
- a decrease in groundwater recharge and groundwater and surface water quality;

- an allocation of navigation on the canal during the summer period;
- increased health risks related to heatwaves, island of urban heat and poor air quality in summer;
- a risk of disruption to the functioning of certain public services (see below);
- a risk of disruption to transport during extreme weather events (frost, storms, heavy heat, etc.).

Fortunately, the Region has key competences that it can activate to reduce its vulnerability to these different risks. This was done in the previous PACE, adopted in 2016. These powers are reactivated in a strengthened way as part of the Brussels contribution to the NECP.

Dimension Decarbonisation

Greenhouse gas emissions and removals

Federal State

Strengthening the governance cycle and the level of ambition By decision of 8 October 2021, the Council of Ministers took note of the roadmaps presented by the relevant ministers, following its decision of 2 April 2021. In addition, the Council of Ministers reiterated the commitment of the 2020 Government Agreement to review its contribution to the NECP through an action plan, in line with the target of reducing greenhouse gas emissions by 55 % in 2030 compared to 1990. In this context, the government wishes to increase the ambition of federal climate policy and commits to:

- Implement as soon as possible all policies and measures included in the federal contribution to the current NECP.
- For the non-ETS sector, develop and implement new and strengthened policies and measures to further reduce emissions by 25 million tonnes of CO₂ equivalent over the period 2022-2030. These strengthened or new policies and measures will include the greening of taxation (including the reform of the corporate car tax system), the climate bonus (in line with the EU decision-making process), transport (including a carbon-neutral fuel system to be developed), buildings and product standards.
- In the ETS sector, strengthen existing or develop new measures to support emission reductions in the period 2021-2030, notably by increasing electricity generation capacity in the North Sea and phasing out fossil fuel subsidies, preferably in the European context.
- Strengthening existing or new policies and measures will include greening taxation (including corporate car tax reform), climate bonus (in line with EU decision-making), transport (including a carbon-neutral fuel system to be developed), buildings and product standards.
- Adopt enabling policies and guidelines that help create an enabling framework for the full realisation of the potential of federal and regional emission reduction policies and measures.

To help achieve the -55 % target by 2030, the federal government adopted in 2021 a governance system for monitoring the implementation of climate policies at federal level (see more information *3.1.1 H.8 Governance*). Based on roadmaps in 10 priority policy areas (taxation and sustainable finance, energy, transport and mobility, circular economy, government buildings, etc.), the implementation of federal policies and measures will be monitored through biannual monitoring sheets and annual progress reports compiled by the Climate Change Service in a synthesis report. Through this policy cycle, the relevant federal departments and administrations are again encouraged to implement the objectives set out in the Government Agreement, the NECP and the Recovery and Resilience Plan, which should make a concrete contribution to reducing greenhouse gas emissions, climate adaptation and resilience.

In line with the 2020 Government Agreement, a series of climate discussions took place in autumn 2022 to adapt

existing federal policies and measures and discuss possibilities to strengthen policy with additional policy measures. The first synthesis report noted by the Council of Ministers served as a basis for discussion at climate meetings. For more information on the design and results of this participatory process, see Section 1.3. iii.

The Federal Government has also decided⁵² to set up a Belgian Centre for Knowledge of Complex Climate Risks. This centre will be integrated into the functioning of federal scientific institutions to coordinate their climate research programmes, strengthen their cooperation with other research centres and universities, and focus more on the needs of economic and political actors (adaptation measures, management of natural hazards, etc.).

In addition, a coordinating body for the analysis and evaluation of climate change will be operational in 2023, The CRAC. The Federal Centre for Knowledge and Multidisciplinarity will be supervised by the Minister for Climate and the Environment. It will have to perform its tasks independently, ensuring neutral and objective risk assessments and recommendations. It will report to the National Security Council.

Flemish Region

See NECP 2019 and integrated progress report

Region Walloon

See NECP 2019 and integrated progress report

Brussels Capital Region

The new regional climate governance

An ambitious PACE must be accompanied by climate governance commensurate with its ambitions and a robust assessment framework for its policies and measures. This climate governance was put in place in 2021, consisting of several instruments that establish genuine horizontal but also vertical climate governance.

Horizontal and cross-cutting climate governance: the Climate Ordinance and the Climate Expert Committee

The Climate Order of 17 June 2021, the 'Brussels Climate Law', built regional climate governance by incorporating new provisions into COBRACE.

The Climate Order enshrines in law the targets adopted in 2019 in the Brussels contribution to the NECP, i.e. a minimum reduction of 40 % in direct GHG emissions in 2030, on a pathway compatible with climate neutrality in 2050, i.e. a minimum reduction of 90 % (compared to 2005).

This Ordinance provides for the definition of a methodological framework for taking into account so-called 'indirect' GHG emissions, that is to say, those produced outside the regional territory by our activities. Reducing emissions in one territory makes sense only if the strategies pursued do not have the effect of transferring them to other territories, for example by relocating production. The aim is to apply a principle of interregional and international solidarity in the fight against climate change. A methodological framework for reducing indirect GHG emissions was proposed by Brussels Environment in early 2023. It aims to achieve a trajectory comparable to that of direct emissions by 2050, in line with the Climate Ordinance. On this basis, the Government will establish the regional policy to reduce these emissions in line with this objective.

⁵² Decision of the Council of Ministers of 17 December 2021, news.belgium, 18 December 2021. <https://news.belgium.be/fr/accord-sur-la-creation-dun-centre-dexcellence-pour-le-climat>

The Climate Order sets out the principles guiding regional climate policy:

- **The principle of social justice and just transition**, which implies that preventing and reducing social inequalities and precarious situations is an integral part of the development and implementation of climate policies.
- **The citizens' contribution principle**, according to which the Region recognises and facilitates the contribution of citizens' collective action to develop and manage certain common resources and contribute to addressing environmental, in particular climate, challenges.
- **The principle of progress**, according to which the revision of climate objectives and policies must systematically aim at a higher level of ambition.
- **The principle of mutuality**, according to which any regional and local public authority^{shall} act in such a way as to^{enhance} the effectiveness of the measures taken by any other regional and local public authority in the light of the overall objectives set, and shall systematically verify the possible impact of a measure on Brussels climate policy.
- **The principle of integrated pollution reduction**, according to which climate policy must not come at the expense of biodiversity, air quality, water or other environmental components.

These principles must percolate in all the measures provided for in the Brussels PACE.

As regards horizontal governance, the Climate Order commits all regional competences to contribute to climate objectives: each minister and regional body must incorporate climate objectives into their multiannual objective and their notes and guidance letters. Bruxelles Environnement is already actively accompanying a series of regional bodies to help them translate these strategic commitments into concrete and operational actions.

In accordance with this provision of the Climate Order, in April 2021 the Government set up a Climate Steering Committee, bringing together all the members of the Government. The Committee's task is to steer all regional climate action, whether it be the monitoring of measures already adopted or the approval of additional measures. The Climate Steering Committee is chaired by the Minister responsible for Climate Transition.

In order to further anchor political action into operational realities and in compliance with COBRACE provisions on co-construction, the Climate Steering Committee may set up inter-administrative working groups. They are composed of the appropriate administrations around a specific project or mission. For example, a PACE WG has been set up to contribute to the co-construction of PACE.

The Climate Order also establishes a Committee of Climate Experts at the Environment Council, composed of scientific and independent experts. Its task is to assess the adequacy of regional policies and measures with climate objectives, by drawing up an annual report assessing the contribution of regional public policies to medium- and long-term climate objectives and containing recommendations to the government based on this assessment. The report shall also cover compliance with the principles governing regional climate action, as well as the principle of safety, according to which no action taken by regional authorities can undermine climate objectives in the medium and long term. The Climate Expert Committee shall also deliver an opinion on texts, drafts or any matter submitted to it by the Government. The Climate Expert Committee was set up on 5 May 2022. Its composition, tasks, financing and functioning are laid down in a decree.

Finally, the Climate Order establishes a climate day for the BCR Parliament, no later than 15 June each year, dedicated to examining the annual report of the Climate Expert Committee. On this occasion, the Government shall present a report on the action to be taken on the recommendations of the Committee of Experts. Advisory Councils and civil society will also be encouraged to seize the climate today.

Through this committee of experts, its missions and climate day, the Climate Order therefore introduces an annual, transparent and objective, but also public and democratic, assessment of progress towards Brussels' regional

objectives.

Vertical climate governance: of the Region by the municipalities and neighbourhoods in Brussels.

In the 2019-2024 General Policy Declaration, the Government affirmed its belief that the Brussels Region will be able to meet its challenges only if active cooperation between the Brussels institutions and municipalities, but also the Federal State, the Communities and the Regions, is vigorously pursued. This cooperation will be actively promoted in PACE.

As regards climate governance, in addition to the measures taken under the Climate Order, which make it possible to substantially improve the horizontal governance of regional climate policy, the Government therefore also wishes to strengthen the vertical approach to climate governance, involving not only the region but also local authorities and citizens.

In addition, it is necessary to scale up to meet our objectives at a lower cost and to capture synergies with other objectives such as the deployment of renewable heat, climate resilience and social regeneration. This shift of scale is reflected in planning action at neighbourhood level, at a more local and citizen level.

At local and neighbourhood level, local authorities represent a key partner of the Region in achieving climate, energy and air quality objectives. The Climate Order also enshrines the principle of mutual societies, according to which regional and local authorities act as far as possible in order to make the measures taken by other regional and local authorities more effective in the light of the overall objectives set by the PACE, and systematically check the possible impact of a measure on Brussels climate policy. The Government has already given concrete expression to its will by launching the call for projects ("Climate Action") implemented by Bruxelles Environnement. This collaboration with municipalities will be strengthened in this plan. Actions aimed at involving the local level in regional climate policy are described in the chapter on cross-cutting actions.

Finally, mobilising citizens' groups for the transition provides a key space for innovation and action to achieve climate objectives. This area is primarily deployed at the level of a district and a locality, and this link between the actions of the public authorities (at regional or local level) and collective dynamics makes it possible to implement the measures more effectively. For example, strengthening multi-stakeholder links with the call for projects "Inspire the Quarter" has accelerated transition initiatives, in line with local and regional ambitions.

Taxation (depending on decarbonisation)

Federal State

Below is an inventory of the MAP listed in the plan approved for 2019.

a. Carbon Pricing analyses complementary to the national debate for possible implementation

Following the request to carry out additional studies on the implementation and feasibility of a carbon price in the Belgian non-ETS sectors (request stemming from the results of the national carbon price debate published in June 2018), a complementary study was carried out⁵³. This study shall carry out a systematic analysis of all possible legal options for the introduction of carbon pricing at national level, including the impact of the distribution of revenues from such pricing. In addition, in the context of the preparation of the broad tax reform foreseen in the Federal Government Agreement 2019-2024, the Minister of Finance launched a specific study on the possibilities for greening federal taxation⁵⁴. This study also identifies the implementation of carbon pricing as one of the main measures to be

⁵³ Carbon pricing, climat.be, 2019. <https://climat.be/2050-fr/tarification-carbone> <https://climat.be/2050-fr/tarification-carbone>

⁵⁴ Other publications, finances.belgium.be, 2023. https://finances.belgium.be/fr/statistiques_et_analyses/analyses/publications
https://finances.belgium.be/fr/statistiques_et_analyses/analyses/publications

implemented in Belgium and deepens the analyses made in the context of the national carbon price debate in terms of potentially regressive impacts on households.

b. Compile an inventory of all fossil fuel subsidies

A first federal inventory of fossil energy subsidies was carried out in May 2021 as part of the NECP's commitment to carry out such an inventory and to propose a plan for phasing out fossil fuel subsidies (preferably in the European context).

The intention is to update this federal inventory on a regular basis. This update is justified, on the one hand, by the evolution of data from one year to the next and, on the other hand, by the abandonment or adoption of certain measures. Furthermore, the list of energy subsidies, including those for fossil fuels, was notified to the European Commission in 2021, as required by the NECP.

This first edition was updated in April 2023 on the basis of information available on¹ January 2023 and is included in this PFEC update under heading 4.6.iv.

c. Establish an action plan to phase out fossil fuel subsidies

As regards phasing out these subsidies, they should aim to reconcile the elimination of harmful effects on the environment, on the one hand, and the undermining by other means, which are not harmful to the environment, of the objectives identified, in particular social objectives, on the other. In addition, a clear path towards phasing out these subsidies is essential.

Recent measures include the limitation to 1 January²⁰²² of the reimbursement of commercial diesel and the gradual reduction in tax deductibility for petrol and diesel company cars accompanying the greening of the corporate car fleet.

Other current policies and measures (WFP)

The policies and measures (WFP) pursued and monitored are also presented in section 3.1.1 (i), as well as new additional measures.

Renewables

The deployment of renewable technologies such as solar boilers, heat pumps, solar photovoltaic energy, sustainable biogas, sustainable biomass, geothermal, hydropower and offshore/onshore wind energy will support this transition in a cost-effective manner.

As a key element to engage in the energy transition, we will make the necessary investments and use mainly our own energy sources. In Belgium, we have no oil or gas reserves, we do not have uranium, etc. Belgium has always been particularly dependent on oil, coal, natural gas and uranium imports.

Even the massive use of our own natural resources will not be enough to meet our energy demand. Therefore, imports will remain an important part of our energy supply. Our imports will increasingly shift towards renewable and climate-neutral electricity and molecules from other countries, including those bordering the North Sea, with significant offshore electricity generation potential.

This will ensure greater energy independence and diversification of energy routes.

Belgium also wants to position itself for new molecules and be an import hub for Europe. The future energy system will be largely based on renewable electricity, combined with climate-neutral and renewable molecules and sustainable heat. The establishment of the necessary supply chains is therefore crucial to ensure our long-term security of supply. We also need to ensure that molecules and electrons can interact in a more complementary way and through further system integration.

Federal State

As a key element to engage in the energy transition, we will make the necessary investments and use our own energy resources at our disposal. In Belgium, we do not have oil or gas reserves in the North Sea drilling platforms, we do not have uranium in mines, etc. Belgium has always been particularly dependent on oil, natural gas and uranium imports.

To this end, the Federal Government relies on its own energy sources such as solar, wind, biogas, demand response and storage such as batteries. These are the only technologies for which the cost price is falling. It is also an important way to structurally reduce our dependence on imports. Wind and sun are our main natural resources, and we need to make the most of them⁵⁵.

Therefore, the federal government will also present clear ambitions to develop this long-term planning in collaboration with the transmission system operator.

In addition, Belgian companies have gained extensive experience in the offshore wind sector and we can continue to export this expertise to other countries.

Belgium also wants to position itself on renewable molecules and green hydrogen and be an import hub for Europe. The future energy system will be based on renewable electricity combined with renewable molecules. The establishment of the necessary supply chains is therefore crucial to ensure our security of supply over time. Our unique geographical location means that we must also strive to transport renewable electricity from the North Sea further to the country, and to the rest of Europe. We also need to ensure that molecules and electrons can interact in a more complementary way, and through further system integration.

In addition, ambitions for renewable energy production are increased and, where appropriate, the necessary enabling measures are taken to significantly accelerate the deployment of production and integration into the renewable energy system⁵⁶.

Renewable Energy in Transport

In the context of the transposition of RED II, a greater contribution of other forms of renewable energy to transport objectives is envisaged, as well as a gradual reduction in the contribution of first generation biofuels. A registry will be put in place to enable the accounting of renewable energy units for the transport sector, allowing a shift from fossil fuels to renewable electricity and molecules.

As stipulated in the NECP 2021-2030 approved by the Consultation Committee on 18 December 2019, the Federal Government is conducting a study every two years to assess the technical feasibility of the mixing rate; the availability of raw materials, environmental integrity and potential conflicts of use; the availability of advanced fuels, including recycled carbon fuels and technological developments in the European market; the availability of other renewable energy sources; the cost to consumers.

The Law of 16 December 2022 amending the Law of 17 July 2013 on minimum volumes of sustainable biofuels to

⁵⁵ Energy Policy Paper 2022, Belgian House of Representatives (Minister of Energy, Tine VAN der STRAETEN), 29 October 2021. https://www.tinnevanderstraeten.be/beleidsnota_2022

⁵⁶ Kern decision on security of supply and accelerating the energy transition towards greater energy independence, PM.be (Alexander De Croo), 18 March 2022. <https://www.premier.be/nl/verlenging-levensduur-kerncentrales-doel-4-en-tihange-3>

contain the volumes of fossil fuels released for consumption each year, provides for a phasing-out of the contribution from biofuels produced from palm oil or soya bean oil, with effect from 1 January 2023 and 1 July 2023 respectively.

Furthermore, in the context of the transposition of REDII, a greater contribution of other forms of renewable energy to transport objectives is envisaged, as well as a gradual reduction in the contribution of first-generation biofuels, followed by an evaluation in 2028.

A registry will be put in place to enable the accounting of renewable energy units for the transport sector, allowing a shift from fossil fuels to renewable electricity and molecules⁵⁷.

Finally, work is under way to put these new frameworks into practice, as soon as the results of the trilogues on FuelEU Maritime and Refuel Aviation, as well as the revision of the RED (all under the Fitfor55 package) are known, within the framework of legal competences and without prejudging Belgium's internal divisions in this area. In this way, they can contribute to an increased use of sustainable renewable energy sources by different transport modes.

Flemish Region

See NECP 2019 and integrated progress report

Region Walloon

See NECP 2019 and integrated progress report

Brussels Capital Region

According to the 2020 energy balance, the production of electricity (RES-E) and heat and cooling (C & F) from renewable energy sources (RES) in RBC reached a new record in 2020 with no less than 376 GWh produced.

While the production of C & F RES remains relatively constant in recent years, the increase in RES-E is driven mainly by the development of solar PV. The new production record in 2020 is due to high solar photovoltaic production (129 GWh), which for the first time exceeded the incinerator's share of renewable electricity production (124 GWh).

GWh		2015	2016	2017	2018	2019	2020
Electricity SER		181	178	209	224	256	268
	Urban waste	127	123	150	152	153	124
	Solar photovoltaic	45	45	50	64	90	129
	Cogeneration	9	9	9	7	13	15
Hot &D		105	116	117	105	100	108
Total RES		286	294	326	329	356	376

Table 14: Production of renewable energy in Brussels 2015-2020 (excluding biofuels, excluding charcoal) (Source: RENAQ).

General Energy Policy⁵⁷ Note 2023, Belgian Chamber of Representatives (Minister of Energy, Tinne VAN DER STRAETEN), 31 October 2022.
<https://www.dekamer.be/doc/FLWBpdf/55/2934/55K2934019.pdf>

Looking more closely at the evolution of installed capacity for solar PV, solar thermal and heat pumps, the three renewable energy sources in the BCR with the highest potential, we can see that PV production has progressed well since 2018, with an average increase in installed production of 44 % over the period 2018-2020. In 2020, there were 197 MW of installed photovoltaic panels, or almost 8 % of the region's estimated potential of 2 500 MW.

On the other hand, solar thermal does not change and heat pumps are very little, despite the energy premiums in place, which are expected to encourage their development. It is important to recall that solar PV benefits from green certificates, unlike solar thermal, which, given that the 2 technologies compete for the same space (mainly the roofs of buildings), could explain this significant difference in evolution between the two technologies.

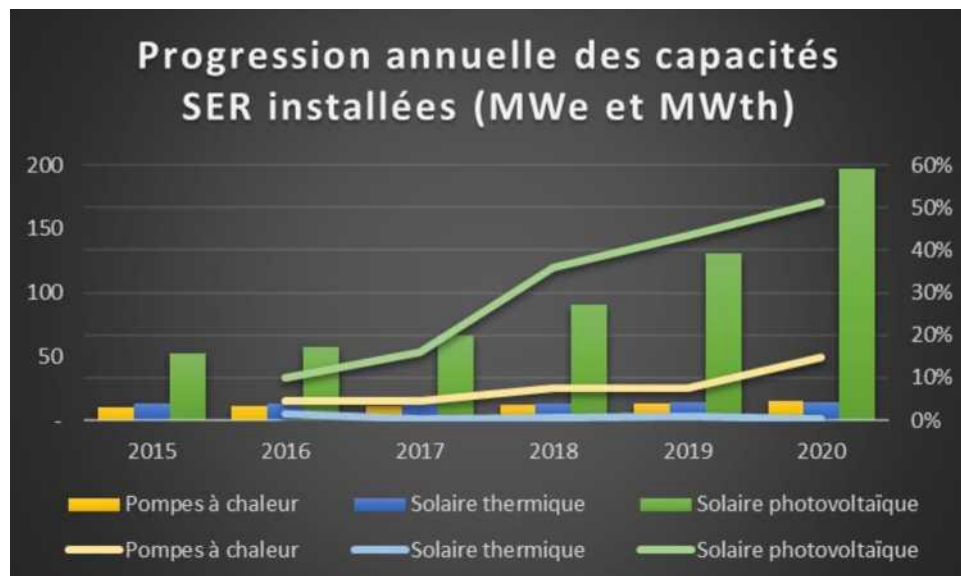


Figure 2: Installed Brussels renewable energy capacity 2015-2020 (Source: RENAQ).

It should be realistic about the necessarily limited production of RES in the BCR. In particular, renewable heating and cooling production does not seem to change significantly in recent years (unlike solar photovoltaic), although this will be necessary in order to decarbonise heating and cooling in the building. The barriers to RES deployment in this sector will therefore need to be understood and barriers removed in order to contribute to the objectives of the European Union.

Structural constraints

As already stated in the NECP, the BCR has structural features that significantly limit its renewable energy production potential: its geography, strong urbanisation, restricted free space, the need to pay attention to air quality issues and, lastly, the proximity of the national airport. These elements limit the development of large wind or hydropower, and the massive use of solid biomass (wood). Moreover, the large proportion of tenants and co-properties slows down investment in renewable energy installations in housing.

Although heat pumps have a much higher efficiency than fossil boilers, they struggle to generalise, inter alia due to the price differential between electricity and fossil fuels (electricity being about 3 times more expensive than gas) and the cost of acquisition.

Although in recent years there has been growing momentum for vertical geothermal energy using heat pumps (technology exploiting groundwater energy through wells or subsoil energy through probes), particularly in the tertiary sector, where projects require a thermal power (hot or cold) of more than 50 kW, this technology is still little

used in view of the potential of the Brussels subsoil. Premiums remain limited to date despite the much higher yields of geothermal technologies. This implies a return on investment time generally lower or close to 10 years for an installation of more than 50 kW, but significant in the case of small installations without cooling (between 10 and 20 years).

Opportunities

While it is clear that the constraints associated with the Region are numerous, there are also opportunities that need to be highlighted.

The RENOLUTION Building Renovation Strategy will allow progress to be made in the development of renewable heat. The following initiatives form an integral part:

- The Rénoclick project, which makes it possible to accompany public authorities in their exemplary duty.
- The specific renovation plan for social housing (PUL 2020-2024).

The Region has in most of its territory a subsoil favourable to shallow vertical geothermal energy, the potential of which has recently been highlighted through the Brugeo project. Urban density, with some rather heterogeneous neighbourhoods (residential and tertiary) is an asset in the development of district heating and cooling.

Biogas production in the BCR, whether through the recovery of sludge from waste water treatment plants or bio-waste, must be seen as an opportunity to recover the energy contained in waste water treatment plants on the territory of the Region, while creating local jobs which cannot be relocated. In this sense, the systematic collection of the organic fraction of residual waste (obligation to be sorted by 31 December 2023) will make it possible to take full action.

To increase renewable energy production by public authorities, the Region makes available the RénoClick programme for regional, local and Community authorities (COCOM, COCOF, VGC) in order to facilitate and speed up the installation of new photovoltaic panels on own funds or third-party financing through framework agreements. At the level of regional public housing, the SLRB 2020-2025 Management Contract provides for the installation of photovoltaic panels by 2025 allowing for an additional solar production of 5 GWh/year.

Finally, the future rise of energy communities will increase consumption during periods of production from renewable energy sources and raise awareness among citizens and businesses of existing renewable energy opportunities.

Evolution of the legal framework

In 2022, a series of important changes were made to the legislative framework for energy markets (electricity and gas) with the aim of transposing the new directives resulting from the *clean energy for all Europeans* package in this area, in particular to make it more capable of contributing to the challenge of the energy transition, while protecting consumers. This revision made it possible to respond at least partially to some of the constraints identified in the previous section.

With the end of compensation, it was important, for example, to increase the opportunities for using renewable electricity produced but not self-consumed. The amendment to the Electricity Market Order (Electricity Order) thus establishes a legislative framework for the sharing (in particular within co-ownership with tenants), the exchange (peer-to-peer) and the sale of self-generated electricity (which does not pass through the grid and circulates within a building).

The revision of the Electricity Order also recognises the existence of a new player in the electricity market: the “Energy Community”, and defines its operational framework. An energy community can take three forms: citizen, renewable or local. The amending order also regulates emerging activities in the electricity market: flexibility (adapting its

electricity abstraction or injection in response to an external signal), aggregation (which aims to combine multiple consumption loads and/or power generation to recover them), storage and charging of electric vehicles. In this connection, all recharging points accessible to the public on roads (located on the municipal or regional public domain) are to be supplied exclusively with green electricity.

Finally, the Order provides, by the end of 2023, for the Brussels Environment assessment of the potential, development and functioning of energy communities and renewable thermal energy communities, including any unjustified obstacles and restrictions to their development. This evaluation will be carried out in consultation with a regional working group whose members will be the public authorities concerned by the subject (the Cabinet of the Minister for Energy, Brugel, Sibelga, BE), as well as various stakeholders on the ground (project promoters) or academia.

As regards gas, the revision of the Gas Market Order (Gas Order) introduces a traceability mechanism for renewable gas: guarantee of origin. This mechanism is operationalised by the amendment of the BCR Government Decree on the promotion of green electricity of 15 December 2022. This makes the biogas market more transparent and gives suppliers the opportunity to promote the renewable nature of the gas consumed.

With a view to achieving the objectives of renewable energy production in the BCR for 2030, the levers offered by this new regulatory framework will make it possible to place consumers at the centre of the energy transition, by facilitating access to new production and consumption patterns. These new legal instruments will make the Brussels consumer an actor in achieving regional objectives. The support envisaged should facilitate the accelerated development of these new production and consumption patterns.

In order to benefit from this new legal framework, the Government set up an accompanying service in early 2022 to encourage the development of energy communities, the sharing, trading and sale of electricity produced from renewable sources. This one-stop shop aims to support project promoters in the implementation of energy communities through:

- Provision of general information.
- Individual support to project promoters.
- Development of tools such as frameworks for agreements, invoices, etc.

Other elements of the dimension (including phasing out FFS, e-mobility, HTA, etc.)

Federal State

Sustainable finance

The Federal Government has received, through the Technical Support Instrument of the European Commission, resources to develop options for a Belgian sustainable finance strategy. The main objective is to support the financial sector, the sectors of the real economy and the federal government in aligning with ESG objectives, with a clear vision and an overarching framework, focusing on making financial flows more sustainable and mobilising the investments needed to achieve Belgium's climate, environmental and sustainability objectives in a cost-effective manner. In this way, we want to set a coherent line of objectives to support the sustainable transition at Belgian level, increase transparency, align actors with common stakeholder objectives and align investment policies.

International solidarity⁵⁸

The federal government bears its responsibility in tackling the global climate crisis, pollution and biodiversity loss. It does so both bilaterally, in cooperation with other countries, and through the EU and the UN, in particular in the

International Solidarity Policy⁵⁸ Declaration, 26 January 2023, Caroline Gennez.

context of the Climate Convention negotiations. A key instrument is international climate finance, aimed at supporting Belgian partner countries, mainly the least developed countries, in a cross-cutting strengthening of their climate policies, and increasing the capacity of vulnerable communities in these countries to adapt to the impact of climate change. Within this broader framework, the following priority areas have been identified: sustainable management of biodiversity and ecosystems, including forests and soils; climate-smart and resilient agriculture; and sustainable urban socio-economic growth. In addition, interventions are chosen on the basis of their potential for a sustainable improvement in living standards.

Belgium recognises that women, girls and marginalised groups are often the hardest hit, and takes this into account in the selected interventions. Special attention is also paid to small farmers and young people. Belgium also wants to ensure that all companies operate in a sustainable and socially correct way. Organic, the Belgian investment company, has had an ambitious climate strategy since last year. With this strategy, BIO will strengthen and expand its commitment to climate adaptation investments. See also 3.1.1 i

Flemish Region

International climate finance aims to support developing countries in their actions against human-induced climate change. In the context of the United Nations Framework Convention on Climate Change⁵⁹, developed countries had to take the lead in providing international climate finance and pledged to jointly mobilise USD 100 billion per year by 2020. By 2025, a new collective international target of more than USD 100 billion per year will be set. The order of magnitude and the related conditions of this new target will be negotiated by 2025.

For the period 2016-2020, Belgium had committed to annual funding of EUR 50 million. According to the collaboration agreement of 12 February 2018 between the Federal State, the Flemish Region, the Walloon Region and the Brussels-Capital Region on the distribution of Belgian climate and energy objectives for the period 2013-2020⁶⁰, Flanders was to allocate EUR 14,5 million annually to international climate finance. In an agreement in principle dated 14 September 2022, the climate and energy ministers of the various Belgian governments agreed to increase the contribution to international climate finance for the period 2021-2024. In doing so, Flanders commits to contribute EUR 68 million over the period 2021-2024. This agreement in principle will be formalised in a new collaboration agreement submitted to parliaments.

Flanders' international climate ambition is demonstrated by continuing to contribute to international climate finance, preferably using these means for projects involving Flemish companies, such as through calls for projects launched in recent years.⁶¹

Brussels Capital Region

The issue of meeting developed countries' commitment to international climate financial support is particularly important for the Brussels Region. It is about the credibility of these countries, of which it is part, and it is an essential condition for restoring confidence in international climate negotiations and ensuring their success.

Climate finance in our region must comply with a series of conditions contained in COBRACE:

- Be complementary to investments relating to the acquisition of carbon units.
- Be complementary to Belgium's Official Development Assistance.

⁵⁹ www.unfccc.int

⁶⁰ Burden Sharing Cooperation Agreement: https://www.cnc-nkc.be/sites/default/files/content/ac_bs_2013-2020.pdf

⁶¹ <https://www.climate-action-programme.be/>

- Be additional to regional emission reduction actions.
- Respect the environmental and socio-economic criteria of sustainable development.

In recent years, the Brussels Government has been opting for a dual strategy for its climate financing. It finances part of multilateral funds (e.g.: Green Climate Fund, Adaptation Fund) and bilateral projects through the conclusion of an agreement with Enabel (Belgian Development Cooperation Agency) or the launch of joint calls for projects from Bruxelles Environnement and Bruxelles International in several editions.

The Adaptation Fund finances climate change adaptation projects or programmes in developing countries. Given the structural underfinancing of the Adaptation Fund, and the emphasis placed by the beneficiary countries on this financial instrument, due in particular to the theme it covers (adaptation is considered to be essential by the more vulnerable developing countries), and its ease of access (direct access), it is a privileged fund for international climate finance in our region. A convention was signed between the Brussels-Capital Region and the Belgian Development Agency (Enabel) in December 2016 to support the fight against the effects of climate change in developing countries. The Agreement covers an amount of EUR 2 519 186,00 and ran from 2016 to 2021.

In 2021, the RBC was the world's largest per capita contributor to the Adaptation Fund. The Green Climate Fund is a financial mechanism of the United Nations, attached to the UNFCCC. It aims to transfer funds from the most advanced countries to the most vulnerable countries for projects to combat the effects of climate change. In line with its commitment in 2016 and 2020, the CBR contributed EUR 11,3 million to international climate finance. The CBR's contributions to multilateral funds since 2013 are summarised in the following table:

Year	Green Climate Fund	Adaptation Fund
2013	!	EUR 500.000
2014	600.000 6	!
2015	EUR 500.000	!
2016	EUR 2.500.000	EUR 2.500.000
2017	!	EUR 601.175
2018	!	EUR 464.000
2019	!	401.037 6
2020	EUR 1.000.000	EUR 105.000
2021	!	2.250.000

Table 9. I faHBCcux fondsjnultHatâxita 2013-202F (self ^ ee:
do EUvmsrînemnrJ.

Table 15: BCR donations to multilateral funds 2013-2021

Contributions in the form of grants to multilateral funds help finance larger projects. On the other hand, they do not offer the possibility to choose the projects implemented, their location or the organisations responsible for them. As contributions are not allocated to a specific project, it is impossible to target priority actions or beneficiaries, nor the Belgian or Brussels cooperation partner countries. This is why our Region has also chosen to finance so-called bilateral activities. As Enabel is a leading player in Belgium for the implementation of projects in developing countries, an agreement has been established with the CBR. Such collaboration has the advantage of establishing a more direct link with beneficiaries, building on the existing expertise and projects of Enabel, and ensuring coherence in the work of the Belgian institutions on development cooperation and international climate finance.

Enabel's projects in which the RBC has invested have a top-up mechanism: on the basis of an existing or planned

project, they give the interventions concerned a climate dimension that was not initially envisaged. The actions benefit from the management structure in place and can start quickly, in various partner countries and regions, and with the will to develop diversified actions.

Energy efficiency dimension

The commitment to energy efficiency in all sectors reduces energy demand, helps Belgium reduce its dependence on fossil fuels and is a cost-effective and sustainable way to reduce greenhouse gas emissions. This benefits both climate and energy objectives and security of supply. In addition, energy efficiency saves households and businesses, making it a win-win measure for the climate and the economy. After all, the cheapest energy is the one that is not used. Energy efficiency is largely a regional competence, and the Federal State is also strongly committed to this by taking accompanying measures within its own competences.

Federal State

Security of supply concerns will not suddenly disappear. However, there are 'consumption tools' that we can use to positively influence security of supply. One of them is the energy label for household products. When presenting new EU legislation as part of energy labelling or revising existing EU regulations, the federal government will always strive to achieve a high level of energy efficiency for all appliances, but always paying sufficient attention to affordability, so that energy-efficient technologies remain accessible to all. It will also ensure that manufacturers and importers are sufficiently informed of these laws, that they are assisted in this task, and that measures are taken against abuse if necessary. In order to carry out these tasks effectively for most EU companies, BE will actively participate in existing and future EU cooperation projects on energy labelling, as we are already doing under the EEPLIANT3 project. The actions taken in this context will undeniably make products available on the market more efficient, thus contributing positively to a reduction in energy consumption and thus consumer bills.

Flemish Region

See NECP 2019 and integrated progress report.

Region Walloon

See NECP 2019 and integrated progress report.

Brussels Capital Region

The reduction of energy needs in the building sector in Brussels is first achieved through the implementation of the various actions contained in the RENOLUTION renovation strategy. Three major angles of attack are fully invested:

- Increasing the renovation rate with the objective of reaching a rate of 3 % per year.
- Improving the quality of renovations.
- Rational use of energy within the building.

The guidelines for the renovation strategy are supplemented by 34 action sheets describing the concrete actions that the Region will have to put in place (we do not include them *in full* in this document so as not to disbalance it). The entire panel of public policies is deployed: regulations, coaching, incentives, support, innovation, documentation,

communication, etc.

The renovation momentum that will be triggered by the renovation strategy will require a constantly increasing skilled workforce. Investment is therefore needed in training and improving the image of the construction sector to ensure that there are enough workers with the right skills to ensure the renovation wave.

Public awareness and acceptance are also essential for effective implementation. The requirements should be known and understood by all stakeholders, as well as the short- and long-term objective and benefits in terms of climate objectives, comfort and the reduction of energy poverty.

These key issues are addressed by the RENOLUTION Alliance launched in 2021, in which all private and public stakeholders involved in the energy renovation of the Brussels building are working together to design, evaluate and develop the tools to support the implementation of the RENOLUTION renovation strategy and make it an environmental, economic and social opportunity for Brussels.

The Alliance is organised around 7 thematic workshops:

- **The Regulatory Workshop:** in charge of developing tools and the regulatory framework, the workshop works to strengthen requirements and obligations, stimulate the exemplary role of public authorities and strengthen administrative simplification in terms of energy performance and sustainability.
- **The workshop accompanying demand and supply:** analysis, consolidation or development of support devices for building renovators and preys: from tenants to owners, public and private. It also brings together renovation professionals around concrete solutions. Objective? Accelerate energy renovation by ensuring that demand meets the supply side while integrating a sustainable and circular approach with existing practices.
- **The financing workshop:** in charge of coordinating projects related to financing and economic aid, the workshop is responsible for developing or improving financing and support mechanisms for sustainable and circular renovation, and exploring new sources of financing.
- **Logistics workshop:** part of the local production and logistics working group of the regional strategy for economic transition “Shifting Economy”, this workshop deals with business reception infrastructure issues (storage areas, small workshops, logistics hub, Brussels business consolidation centres, etc.) to adapt them to the construction and renovation sector.
- **Urban Planning and Heritage Workshop:** aims to establish a framework to facilitate energy work while taking account of architectural and heritage characteristics. It will ensure that urban planning legislation and regulations are adapted and simplified in order to achieve this objective.
- **Urban renewal workshop:** Tasked with enhancing sustainability in urban renewal operations, the workshop aims to integrate RENOLUTION objectives into urban renewal policy, in particular with regard to public procurement and the exemplary nature of public projects.
- **Training and employment workshop:** Dedicated to training and employment issues in the construction sector, the workshop focuses on adapting training and developing employment chains.

The Alliance is developing coherent and innovative solutions to achieve the ambitious objectives set by the RENOLUTION strategy.

Social aspects will have to be taken into account through each of the Alliance’s workshops, in particular in the Financing WG, including:

- The wider deployment of the Ecoréno loan.
- The creation, in the short term, of a loan with transfer payments for the elderly or severely vulnerable by the

Housing Fund.

- Loans to co-ownership by the Housing Fund.
- The introduction of reported contracts for neighbourhoods to make renovation accessible to all.
- The development of a strategy for energy renovation in social housing to reach an average of 100 kWh/m²/year on the public park as soon as possible.

Furthermore, as an alternative to the establishment of an energy efficiency obligation scheme, a series of existing or new measures had been selected by the Government of the Brussels-Capital Region in order to achieve energy savings for final customers. The annual amount of new energy savings achieved through this approach is equivalent to the amount of new energy savings required under the default approach. These measures are those notified to the European Commission and are prolonged in this NECP. It is therefore sent to the section on energy efficiency in Chapter 3 of this NECP.

In addition to the sectoral measures aimed at reducing the region's energy consumption, a set of measures to strengthen energy sobriety at all levels was activated as early as the winter of 2022-2023:

- Circular on energy sobriety of the public authorities of the Brussels-Capital Region;
- Decree of the Government of the Brussels-Capital Region of 15/12/2022 laying down temporary measures to reduce demand for gas and electricity and access to protected customer status for households in the context of the energy crisis.

The energy security dimension

Federal State

Diversification of energy sources

The exploitation of Belgium's fossil energy natural resources is not sufficiently profitable. The last coal mine closed in 1992. There is now only a small recovery of coal from waste heaps, as well as mining of mine gas for electricity and heat production. As a result, the dependence on imported fossil fuels to meet domestic energy needs is very high.

In 2021, energy dependency, which corresponds to the ratio between net imports and the sum of gross inland consumption and energy supplied for international maritime transport, stood at 70.8 %. Diversification of importing countries and strategic stocks are the main means of ensuring security of supply⁶².

Net Imports	Mtoe	TJ
Oil and petroleum products	27,7	1.158.950
Natural gas	15,2	635.815
Solid fossil fuels	2,4	100.509
Electricity	— 0,7	— 28.355
Renewable fuels and waste	1,0	40.130

⁶² Key energy figures, economy.fgov.be. February 2023. <https://economie.fgov.be/fr/publications/energy-key-data-fevrier-2023>

Total	45,5	1.907.050

Table 16: Net imports of fossil fuels by Belgium, 2021

The diversification of countries of origin of crude oil and natural gas is monitored: in 2021, almost 30 % of the imported crude oil came from Russia. Among the countries of the Organisation of Petroleum Exporting Countries (OPEC), Saudi Arabia and Iraq were the countries from which Belgium imported the most (8.1 % and 4.2 % respectively). “Others” refers to countries such as Canada, Cuba, France and Guyana.

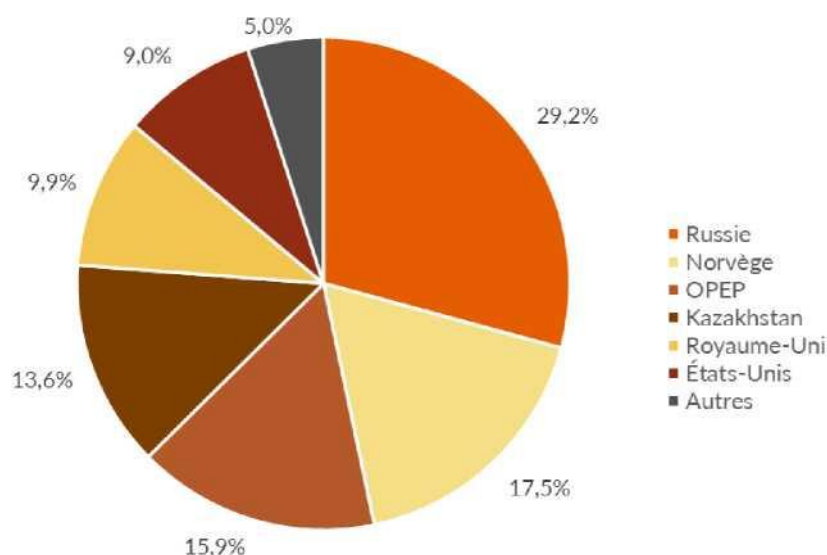


Figure 3: Crude oil imports by importing country by Belgium, 2021

Belgium is at an international gas crossroads, with border interconnection points with several countries, as well as the port of Zeebrugge through which liquefied natural gas (LNG) is imported. In 2021, 50 % of the gas that entered Belgium passed to a neighbouring country.

Due to Eurostat's international trade reporting conventions, net imports are less representative with regard to the differentiated treatment of LNG. Indeed, net LNG imports include not only LNG consumed or stored in Belgium, but also regasified and re-exported LNG. For this reason, it was decided to present the origin of the natural gas that was consumed or stored in Belgium rather than the net imports.

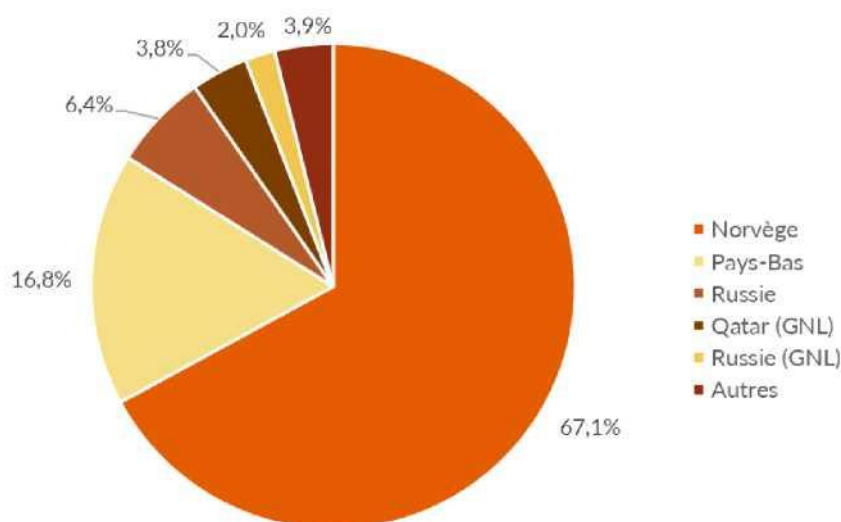


Figure 4: Gas imports by importing country by Belgium, 2021

In 2021, 93.7 % of gas consumed in Belgium entered via pipeline. 67.1 %, 16.8 % and 6.4 % respectively of the gas consumed in Belgium come from Norway, the Netherlands and Russia. On the other hand, 3.8 % and 2.0 % respectively of the gas consumed in Belgium arrived by ship from Qatar and Russia in the form of LNG. The category 'Other' refers to the United Kingdom, France (regasified LNG), Denmark, the United States, Algeria and Egypt.

In Belgium, the only underground natural gas storage facility is Loenhout. It has a capacity of 8.7 TWh (Working Volume), of which 7.6 TWh is allocated to fixed commercial capacity (Golden SBU). As of 1 November 2022, the Belgian storage facilities were filled at 100 % of their fixed commercial capacity.

At the end of 2022, Belgium had an electricity storage capacity of 1 427 MW (1 307 MW in pumping and 120 MW of batteries).

To tackle the crisis, we are taking measures to ensure security of supply in the short and long term.

This will focus on the following priorities:

Electricity

- Continuous control of electricity generation capacity
- See paragraph 3.3 above. *Improve the design of the Capacity Remuneration Mechanism (CRM)*
- They are referred to in point 3.3 above. *New study on security of supply:*

In the context of the biennial report on adequacy and flexibility, with a view to the sustainability of the capacity remuneration mechanism (CRM) and in the light of the current energy supply situation (the French nuclear fleet, the energy challenges in Germany and the war in Ukraine), the Government asks the Prime Minister and the Minister for Energy, in consultation with Elia and CREG and in consultation with market operators and the AFCN (via the supervising minister) within its competence to study, in line with safety and security conditions, all additional options (including renewable, flexibility, nuclear and fossil fuels) to further enhance our country's security of supply, if necessary, for the period up to and including 2030.

Shortage price

As part of the capacity remuneration mechanism (CRM) applied in Belgium and in line with the implementation plan to improve market efficiency, an annual report has been submitted to the European Commission. It also addresses the issue of scarcity pricing. The appropriateness of introducing this mechanism should be considered at least at regional level (CORE). The market benefits of co-existence of scarcity pricing and a capacity remuneration mechanism (CRM) will be examined. These studies are ongoing (including an analysis of merits) and market participants will be involved in due course.

Electricity generation, storage and transmission

Preparation of a proposal to amend the Electricity Act in the course of 2023. The amendments to the law will be implemented after consultation of the CREG, Elia, Fluxys and the Federal Planning Bureau on the planned reforms.

Regulating the exit of the nuclear nucleus

The Nuclear Decommissioning Working Group shall ensure that the relevant nuclear institutions make maximum efforts in training and recycling to make the most of their decommissioning expertise. A roundtable on dismantling published a final report which resulted in a number of private initiatives, including the Agoria Belgian Decommissioning Days. In the margins of this round table on dismantling, working groups have been set up (Metal, Characterisation, Primary Circuit, Logistics and Storage) to examine the role that Belgian expertise can play in dismantling.

Crisis policy

Electricity

The first final electricity risk preparedness plan was submitted to the European Commission on 20 January 2022. The reform of the electricity crisis management policy will continue, based on the opinion of the European Commission

on electricity crisis management and in consultation with relevant stakeholders, focusing on potential vectors and cross-border impacts. In addition, efforts have been made at national level to strengthen the existing legal framework. For example, the draft AR for federal technical regulation RD includes a chapter on electricity crisis management, the Minister of Energy is designated as the competent authority for security of electricity supply and the procedure for designating priority network users has been streamlined and simplified. In the light of new technical and social developments, demand reduction measures have been revised and communication channels with the general public, both in normal times and in crisis situations, are being finalised.

Gas

Since Russia's invasion of Ukraine, the federal government has also strengthened its natural gas crisis policy, both on the initiative of the Federal Energy Minister and as a result of the obligations created by various (emergency) European regulations. At federal level, the emergency plan for the security of gas supply was amended twice by ministerial decree in April and September 2022. It defines different categories of customers and determines the share of consumption of protected customers (households and essential social services). A framework was also created at federal level to take full advantage of underground gas storage in Loenhout. Also in 2022 (and 2023), Belgium complied with the voluntary reduction of natural gas for the reference period August-March. Finally, Belgium has also put in place a legal framework for granting State aid to shippers and suppliers with liquidity problems.

In 2023 (and beyond), work will continue to operationalise the emergency plan for security of gas supply. This includes providing a legal basis for a shipper of last resort to allow the further development of "DSR". In addition, all measures in the emergency plan will have an operational fiche and a corresponding communication approach. The aim is also to put in place, in close cooperation with Fluxys Belgium and Elia, a procedure to minimise the cross-effects of a gas crisis on the electricity grid. At European level, Belgium will support as far as possible EU initiatives such as demand aggregation and the implementation of the price cap on European virtual trading points. However, Belgium will also endeavour, when extending the mandatory consumption reduction, not to take into account the volumes of natural gas consumed by power plants. As regards storage, Belgium will monitor and implement the filling processes and, if necessary (after the creation of a legal basis), designate a storage filling agent to intervene if the market does not comply with its commitments.

Oil

Taking into account the experience of the Ukrainian crisis, the National Oil Bureau (NOB) will continue to develop and refine the procedures for managing an international crisis. National crisis management procedures include the establishment of indicators to detect the threat of a national crisis. We will take the necessary measures to identify priority users of petroleum products in the event of a crisis. Cooperation with the NCCN on national oil crisis policy will be further strengthened. As part of crisis preparedness, we will review Apetra's tasks and look at the broader role that Apetra can play in managing and storing energy products other than oil and petroleum products.

Extension of nuclear power plants

Government decisions 18 March and 1 April 2022

The federal government approved a draft law amending the Nuclear Exit Act. The aim of the preliminary draft law is to enable the activation of the Doel 4 and Tihange 3 nuclear reactors for an additional period of 10 years, after taking into account the results of the environmental impact assessment, public consultation, consultation of competent authorities and transboundary consultations.

In response to the difficulties of the French nuclear fleet, the heavy dependence on fossil fuels, the acceleration of

the energy transition and geopolitical tensions making prices very volatile and putting the supply of natural gas under pressure, the Federal Government decided on 18 March 2022 to take the necessary steps to extend 2 GW of nuclear capacity – in particular Doel 4 and Tihange 3 – for a period of 10 years. This decision is part of the European Commission's policy of greater independence from fossil fuels and diversified energy supplies.

Measures in response to high energy prices:

Winter plan

Announcement of the Winter Plan 2022-2023, 15 July 2022

On 15 July 2022, in response to the next winter energy crisis, the federal government announced a winter plan on rising energy prices and security of supply poverty.

The federal government has already taken more than **EUR 4 billion in measures to support households' energy bills**⁶³. At the same time, several measures have been taken in recent months to ensure security of supply:

- Consultation and follow-up with various stakeholders (AD Energie – Elia – Fluxys – ECG – France)
- Current version of the Natural Gas Emergency Plan registered in MB 19 April 2022
- Loenhout: additional auctions held in April 2022
- Advocating for joint purchasing, price caps in the wholesale gas market and changing the model of the electricity market at EU level

Thanks to its central position in Western Europe and its **highly connected network infrastructure with neighbouring countries**, our country is in a unique position. This is true for electricity, natural gas – it should be remembered that only 46 % of Russian natural gas is consumed in Belgium – and oil. Our country is therefore able to channel large quantities of electricity, gas and oil. This is undoubtedly an important asset for its own energy supply.

The full list of measures taken in response to high energy prices is described and listed in *Chapter 3, dimension of the internal market*.

Dimension of the internal energy market

Federal State

Interconnections

As regards interconnections, Belgium plays a crucial role as a transit country for gas. We are also determined to strengthen electricity interconnections, including offshore wind (see below under the renewable energy dimension: North Sea interconnections). For example, TSO Elia performed a cost-benefit analysis on the feasibility of interconnectors from Nautilus and a connection to the future Danish energy island in the North Sea. Elia is also working on the federal plan for the development of the transmission network for the period 2024-2034.

Energy transport infrastructure (projects)

Decoupling of federal technical rules and the code of conduct:

⁶³ Government Measures and Energy Premium, FPS Economy, February 2023.

<https://economie.fgov.be/fr/themes/energie/prix-de-lenergie/mesures-gouvernementales-et> <https://economie.fgov.be/fr/themes/energie/prix-de-lenergie/mesures-gouvernementales-et>

In order to align with the 'Electricity Law', the Royal Decree of 22 April 2019 on the technical regulation for the operation of and access to the electricity transmission network was split into a new Royal Decree on the Federal Technical Regulation and a Code of Conduct published by the CREG on 1 September 2022. On this basis, the drafting of the new federal technical regulation will continue.

Market integration

The ongoing transposition procedure for Directive (EU) 2019/944 has been complemented by a number of provisions adopted or proposed by the Federal Government. The Bill was adopted by the Federal Parliament on 6 October 2022.

Energy poverty and affordability

Fighting energy poverty

The Federal Government has continued and stepped up the focus on tackling energy poverty:

An expert group on energy poverty proposed energy poverty indicators to be included in the poverty reduction plan. Care will be taken to ensure that macro-indicators are consistent with measures taken at federal level and mechanisms for monitoring measures at individual level will be developed, for example to detect a group of beneficiaries. Structural measures are being prepared to better coordinate and strengthen the different social energy funds. In 2021, the Social Fund for Gas and Electricity was reinforced by EUR 16 million. In 2022, EUR 17 million was allocated to the Social Heat Fund for heating oil and propane.

Taxing excess profits

The huge bills that families and businesses have to pay are the basis for the excessive profits of some energy companies. They should be able to make sufficient profits to finance the energy transition. We have received a detailed analysis from the energy regulator, CREG, which clearly shows that excess profits exist, as well as a BNB report. A cap has also been put in place at EU level by means of a regulation of 6 October 2022, which provides a solid basis for an excess profit tax, by imposing a cap on inframarginal technology revenues in the electricity sector. The federal government introduces such a cap from 2022 to 30 June 2023, which will also be extended if prices remain high and the regulation is extended. For inframarginal technologies, the cap is set at EUR 130/MWh. However, for inframarginal technologies that benefit from variable support depending on the price of electricity, the cap is set at the LCOE plus EUR 50/MWh if the LCOE plus EUR 50/MWh exceeds EUR 130/MWh. In the oil sector, we are introducing a solidarity contribution of EUR 300 million in 2022 and 2023. Care will be taken to ensure that this contribution cannot be passed on to the pump. Finally, Fluxys, the gas TSO, will be asked for a solidarity contribution of EUR 300 million. All these measures will unlock ways to help citizens and businesses cope with their high energy bills.

Excise reform:

In order to protect households' purchasing power and to better manage in a structural way the effects of fluctuations in electricity and natural gas prices, federal taxation on energy bills is being reformed. VAT on supplies of natural gas, electricity and heat via district heating networks under residential contracts will be permanently reduced to 6 %, in parallel with a reform of excise duties on these products, with the excise rate for natural gas fixed on the basis of 2021 prices and the excise rate for electricity being set on the basis of 2021 prices. Thus, the federal share of the energy bill does not exceed this level⁶⁴.

In view of the current energy crisis and the major impact of high energy prices on households' purchasing power, the law plans to postpone the entry into force of the chapter with changes in excise duty rates to a later date. For this,

General Energy Policy⁶⁴ Briefing 2023, Belgian Chamber of Representatives (Minister of Energy, Tinne VAN DER STRAETEN), 31 October 2022.
<https://www.dekamer.be/doc/FLWBpdf/55/2934/55K2934019.pdf>

we expect both an acceptable market price level and an interesting price ratio between electricity and gas. We do not want to let families who, by choice or need, switch to renewable heating sources: as the federal government, we help to make a return on investing in a heat pump, among other things. This policy benefits all citizens in our country. Thus, the excise reform is used to support the energy transition.

Excise reform is a flexible policy instrument that can be used to support the energy transition. To this end, the Finance and Energy Ministers are responsible for commissioning an annual review of the annual report between the cost of heating buildings and domestic hot water using renewable energy sources such as heat pumps and solar boilers, on the one hand, and fossil fuels (natural gas, fuel oil, propane, coal) on the other. To this end, the ministers responsible will meet the regions. On the basis of this development, a proposal to adjust the rates of excise duty on these products will be presented, with the intention of gradually transferring after the entry into force of the current reform and over a period of up to 10 years a part of the excise duty on electricity to excise duty on fossil energy sources.

Flemish Region

See NECP 2019 and integrated progress report.

Region Walloon

See NECP 2019 and integrated progress report

Brussels Capital Region

It is undeniable that increasing energy efficiency and sustainability improves living conditions through better thermal comfort, better ventilation and the removal of harmful substances (e.g. asbestos). But while energy efficiency and sustainability can reduce energy consumption, the challenge is to ensure that renovated housing remains affordable for low-income and vulnerable households.

Supporting households and developing tailored financial solutions to compensate for initial investment must ensure accessibility of renovation and accessibility to renovated housing for all, whether to meet the PACE obligations (energy or other) or at the initiative of individuals. Moreover, the measures proposed in the PACE should not contribute to the phenomenon of 'renovating', which is observed in old or popular neighbourhoods that have been substantially renovated. The cost of purchasing the dwellings or the increase in rents resulting from the improvement works make the dwellings inaccessible to their former occupants (who sometimes had to move to enable the works to be carried out). Actors on the ground, such as frontline social workers, will play a key role in this context. Given the integrated nature of social and environmental inequalities, the networking of "social" and "environmental" grassroots actors should be supported in order to bring about convergence of these actors' actions.

In summary, the negative impacts to be taken into account in the implementation of the additional measures are the following:

- Unfairness in access to the benefits of the measure if the instruments do not allow its accessibility (information, support, financing) to vulnerable households;
- The risk of reducing access to decent housing, whether on the purchasing market (increase in purchase prices) or on the rental market (increase in rents);
- The risk of renovation in situations where the works cannot be carried out on the occupied site (in addition to situations where the tenant does not have the capacity to bear the resulting rent increase).

The ambitious measures that the Region intends to undertake in this plan must continue to give priority to supporting

helped to select the projects that best met the award criteria. The 20 new innovative projects selected in 2022 involve leading Belgian universities, research institutes, consultants, industrial partners and SMEs. The 20 new projects selected started by 1 November 2022 and will receive a total support of EUR 24 536 176 in the coming years. All subsidised projects are closely monitored by experts from DG Energy and an external auditor.

In line with the decision of the Council of Ministers of 10 June 2022, a seventh call for projects for the Energy72 Transition Fund was launched on 10 November 2022, with an available budget of EUR 25 million in 2023. The modalities of this seventh call for projects have been further improved to respond even better to the current challenges of the energy transition. Among others, specific themes have been highlighted in thematic axes 1 and 3 (see pages 8 and 9 of the call) which are closely linked to federal government policy and for which additional research and development would be extremely useful. For this call, particular attention is also given to pilot research, development and innovation projects, with concrete achievements and proximity to industry, where ideally part of the project is also funded by the consortium itself. Finally, the functioning of the Energy Transition Fund will be further improved as far as possible, and – in line with the federal government agreement – the fund will be used as a priority for innovative projects that are part of the sustainable energy transition and genuinely contribute to the reduction of greenhouse gas emissions, the transition to renewable energy, and the security of supply of Belgium. The deadline for the Federal Council of Ministers to decide to grant aid by Royal Decree under this seventh ETF call for projects of 10 November 2022 is 31 May 2023.

ETF funding is provided through an annual contribution of EUR 20 million from the operator of Doel 1 and 2, in return for the extension of the lifetime of these reactors. This funding runs from 2016 to 2025. There is currently no decision on the continuation of the financing of the Energy Transition Fund beyond 2025.

Hydrogen

The Federal Government wishes to maintain and strengthen the leading position of companies and research institutions based in Belgium active in H2 molecules and H2 derivatives technologies. The federal government adapts the instruments at its disposal and develops new instruments for R &D to maximise their contribution to innovation in H2 technologies: Energy Transition Fund, Clean Hydrogen for Clean Industry and H2 Import Call. It also invests in a testing facility for the scaling of hydrogen technologies73.

Clean energy and long-term objectives

We are building a climate neutral and sustainable energy system by 2050, with more electrification (mobility and heat), more controllable capacity and more storage. We want to achieve this objective with a view to technological neutrality by enabling sustainable and CO2 neutral production options. With the help of, inter alia, the current building blocks, the Minister of Energy is responsible for developing an energy vision and strategy for our country within a European framework. The aim is to define the planned steps (2030-40-50) to move from the current situation to full carbon neutrality by 2050. Consultations will take place on this matter with federal states74.

Financing measures, including the use of EU funds

72 Energy GROUND OF ENERGIETRANSITIE Call for project November 2022 for financing in 2023, SPF Economie, K.M.O., Self-Employed and Energy, 10 November 2022. <https://economie.fgov.be/sites/default/files/Files/Energy/ETF-projectoproep-van-10-november-2022>.

73 Belgian Federal Hydrogen Strategy. Pillar 2 – Strengthening Belgian leadership in hydrogen technologies, FPS Economy, 17 October 2022. https://economie.fgov.be/nl/themas/energie/energietransitie/belgische-federale#toc_heading_2
https://economie.fgov.be/nl/themas/energie/energietransitie/belgische-federale#toc_heading_2

74 Main decision of 23/12/2021

An overview of the use of EU funds is presented under “5.3 Overview of investment needs”.

Energy standard:

See text under 1.1. ii.

Flemish Region

See NECP 2019 and integrated progress report

Region Walloon

See NECP 2019 and integrated progress report

Brussels Capital Region

As part of its contribution to the NECP, the Brussels Government undertook to maintain and strengthen the Regional Innovation Plan, while at the same time integrating it into the dynamic of the energy and climate transition in urban areas. This is done with the new PRI, adopted by the Government in June 2021, which now constitutes the reference framework for the RBC’s research, development and innovation policy for the period from 2021 to 2027.

As part of its contribution to the NECP, the Brussels Government also undertook to consolidate and strengthen the Regional Innovation Plan and to involve it in the dynamics of the energy and climate transition in urban areas.

This was achieved with the new GIP approved by the government in June 2021, which is now the reference framework for the BCR’s research, development and innovation policy for the period 2021-2027.

iii. Key points of cross-border interest

See also points 1.3 and 1.4 below.

iv. Administrative structure of implementing national energy and climate policies

In accordance with the Cooperation Agreement between the Federal State and the Regions on the coordination of energy issues signed on 18 December 1991, the Federal Government and the three regional governments set up a formal body for discussion and coordination of all energy issues called CONCERE/ENOVER (Energy Consultation Group State-Regions). This ENOVER Group meets monthly and has several permanent and ad hoc thematic working groups on national, European and international priorities.

It is chaired by DG AD Energy of the FPS Economy and is composed of delegates from the four energy administrations and the four cabinets responsible for energy, the Belgian Permanent Representation to the European Union and the Directorate-General for European Affairs and Coordination of the FPS Foreign Affairs. The secretariat is headed by AD Energy.

The National Climate Commission (NCC) was established by the Cooperation Agreement of 14 November 2002 to ensure coordination of Belgian climate policy at national level. The CCA has been active since 2003 and is responsible for monitoring national climate policy and implementing international and European reporting obligations.⁷⁵

⁷⁵Cooperation Agreement, Moniteur Belge, 15 April 2003.

The NQF is composed of representatives of the four entities concerned. Four mandated representatives of each entity are appointed by their respective governments. Members may be assisted by experts. The NQF is supported by a permanent secretariat (composed of officials from the four entities) which carries out the administrative, logistical and technical tasks assigned to it. The NQF is assisted by working groups dealing with the various reporting requirements requiring technical expertise (e.g. WG inventory, projections, ETS, governance, etc.)

During the 6th State Reform, it was decided to optimise the functioning of the National Climate Commission.

Following the work of the NQF Governance WG on analyses and recommendations and ways to improve governance in Belgium, the NCC and CONCERE decided to better coordinate the work between these consultation and decision-making bodies by organising joint meetings. As a follow-up, a joint CNC – CONCERE steering committee for the NECP was also set up, chaired by a representative of the federal government and a representative of the regions.

The development of the National Energy and Climate Plan is coordinated at Belgian level through joint consultations between the NQF and CONCERE. At administrative level, this process is coordinated by the Steering Committee of the NECP. In addition to drawing up an action plan and a proposal for an update of the NECP, it is also responsible – with the support of the Communication WP – for preparing, organising and coordinating the inter-federal part of the national public consultation to be organised.

The different entities decide to work together on energy and climate:

- Make the necessary arrangements for the proper implementation of the EU Emissions Trading System for buildings, transport and other sectors (through the NQF);
- Exchange of information and, if necessary, conclude a cooperation agreement on vehicle charges and taxation in order to decarbonise transport, promote soft forms of transport and public transport, accelerate the transition to zero-emission vehicles and promote rail and waterborne freight transport (through the NQF);
- Exchange of information on the implementation of renewable energy in transport (through CONCERE);
- Exchange of information on the evolution of the kilometres travelled by lorries and on some concrete measures and targets in the short and medium term, such as berths for inland waterway vessels in the port, stricter (fiscal) regulations for polluting modes of transport, support measures for inland navigation and rail transport in the hinterland of ports, and lighter measures to remove additional freight traffic from the road (through the NQF);
- Realising the objectives of mobility as a service by improving, where necessary, cooperation on timetables and pricing between public transport operators and by developing stations as platforms for intermodality (facilitating accessibility for weak and active users, connection with other public transport, parking of bicycles and cars, the provision of charging points for electric vehicles, the development of the supply of bicycles and shared cars, etc.). (through the Inter-ministerial Conference on Mobility);
- Exchange of information on instruments for the certification of the energy performance of buildings in the tertiary sector, on regional instruments, on the creation of a database on heating and on the energy passport for buildings (via CONCERE);
- Exchange of information on the establishment of a regulatory framework for the transport, distribution and standardisation of hydrogen and derived synthetic gases (e.g. ammonia), and on the division of competences between the different levels (European, federal, regional) (via CONCERE).
- Regulations with an interest in the competences of each other that have been approved by the Council of Ministers in the field of energy are shared through CONCERE, climate regulations through the NQF;
- Exchange of information on the development of renewable energy projects with third countries (EU Member States or non-EU countries), as provided for in the Renewable Energy Directive (through CONCERE);
- Sharing information on entities' specific plans regarding the transition of the natural gas network to 2030 and 2050, and the deployment of the grid to promote renewable energy (through CONCERE);

- Submit a Belgian Social Climate Plan to the European Commission by June 2025 (through the NQF);
- There is closer cooperation within the NQF on the reduction of fluorinated greenhouse gases;
- There is cooperation within the NCC on CC (U) S: reporting and implementation of the CCS Directive; monitoring, preparation and exchange of regulatory knowledge; monitoring initiatives on the CO2 network infrastructure in Belgium and neighbouring countries; relationship between CCUS and HTA (monitoring and reporting); stakeholder consultations; preparation of bilateral agreements with other countries (MoU); follow-up of EU consultations on implementation, acting as an administrative focal point.

Federal State

A Federal Task Force, chaired by the Energy and Environment DGs of the FPS Economy and the FPS Health respectively, has been set up to coordinate the preparation of the federal plan with other relevant federal services, government services and institutions in key federal areas, including finance, mobility and transport, government buildings, defence, justice and foreign affairs. It was created to effectively monitor developments in these areas and ensure their coordination in the implementation of obligations under the EU Governance Regulation.

With the introduction of the policy cycle for monitoring the implementation of federal policies (see above), the role of this Task Force has increased as, in line with reporting obligations to the EU, it strengthens monitoring and thus close cooperation, even in the light of increased ambitions and commitments.

The three main tasks of the Federal Energy and Climate Task Force are:

1. The preparation and revision of the Federal Climate and Energy MAP and the federal contribution to the NECP.
2. Monitoring consultation and consultation processes (including the organisation of climate round tables).
3. Monitoring the implementation and evaluation of the Federal Climate and Energy MAP.

For this first task, each administration represented in the TF is responsible for formulating MAP proposals for the public policy areas that concern it. These proposals aim to strengthen or extend existing measures, or to develop new ones, in order to contribute to the achievement of Belgium's climate and energy targets for the period 2021-2030 and to honour the federal state's commitments in this area. Proposals are drawn up in consultation between the relevant administrations and cabinets in the form of "roadmaps" as required by the Decision of the Council of Ministers of 2 April 2021, the format and content of which are specified in a template.

Roadmaps are the main input for the federal contribution to the update of the NECP. The preparation of this contribution is coordinated jointly by the Climate Change Service and DG Energy, in accordance with the arrangements agreed in the NECP CP on updating the NECP. In the process of preparing the federal part of the NECP and its successive updates, TF members also contribute to the establishment of the analytical basis of the NECP, in particular as regards the impacts of the MAP on greenhouse gas emissions and energy system developments, as well as macroeconomic, environmental and social impacts. They shall ensure that robust and consistent data and assumptions are used. In drawing up their MAP proposals (new or reinforced), the members of the TF ensure that information from the MAP monitoring and evaluation cycle (synthesis report), the European Commission's recommendations, the results of the public consultation on the NECP and the "Climate Round Tables" are taken into account.

Flemish Region

Flemish framework

The Flemish policy cycle of execution, monitoring, reporting, evaluation and adjustment is harmonised with the biennial European reporting cycle. The Vision Note on the Framework of Agreements on the Energy and Climate Plan for Flanders, approved by the Flemish Government on 17 December 2021, confirms that the VEKP will be updated at Flemish level in 2023. This update of the VEKP can be considered as the Flemish contribution to the draft update of the National Energy and Climate Plan (NECP) to be submitted to the European Commission by 30 June 2023.

From plan to specific policy measures

This VEKP sets out the broad lines of the policy for the period 2021-2030. It contains action plans and policy packages announced by sector, while including the estimated impact of this policy on projections.

At the end of 2021, a framework of agreements was developed for a fully integrated and data-driven energy and climate policy. This includes clear procedures and timelines for the successive stages of the energy and climate policy cycle, as well as the role of all ministers, departments and entities. In addition, the framework of agreements sets out how stakeholders, experts, local authorities, innovators and precursors will be involved. In this way, all parties concerned get a clear view of their role in the process and will avoid parallel consultations or overlapping projects. Stakeholders are therefore involved both in the preparation and implementation of the policy. This framework allows for mutual commitments. Finally, the role of independent experts in this regard has also been defined.

For each measure of this plan, an entity responsible for its implementation has been designated. For a significant part of the measures, several public entities as well as other actors are involved, even if they are not always involved as final responsible.

The Flemish Energy and Climate Agency (Vlaams Energie- en Klimaatagentschap – VEKA) is responsible for overall coordination, monitoring and reporting on the implementation of the plan.

The specific measures will be implemented in the coming years and will influence the sectoral strategic plans of all relevant policy areas and levels of government. This will be done on the basis of the following principles:

- All ministers will take the necessary actions to ensure that the climate transition is accelerating, each according to the competences for which they are responsible. All sectors must take their responsibility in order to achieve their own objective and the common objective. Each functional minister formulates targeted and substantiated measures for their area that contribute to the Flemish energy and climate objectives.
- **Each policy area and level of power** will have to make a significant and continuous effort to achieve the ambitions of the VEKP. Where useful, the different policy areas and levels of government will work together in order to achieve an integrated and effective approach while respecting each other's competences. The VEKA will ensure overall coordination and monitor the implementation of the plan and the progress made.
- All ministers are required to make regular policy within their competences (Climate Proofing or climate proofing) climate friendly.
- Stakeholder participation: in addition to the different policy areas and authorities, the active contribution of different stakeholders and society as a whole will be necessary to achieve the Flemish energy and climate objectives. Co-creation, concertation, participation, openness and collaboration are key elements in this respect. All administrations, in collaboration with the VEKA, ensure that all stakeholders remain involved in policy development and work together with them in the implementation of the plan.

Yearly progress reports:

The Flemish Authority will report annually to the European Commission on:

- the emission inventory;
- the use of auction revenues;
- international climate finance.

The Flemish annual progress reports will cover all aspects (relevant at Flemish level) of the 5 dimensions of the Energy Union. Given the significantly increased ambition of the binding greenhouse gas reduction target, proper monitoring of sectoral emissions and underlying indicators is essential to correct the policy where necessary.

Monitoring trajectory towards the final update of the VEKP

The European Governance Regulation provides that, after submitting the draft update of their national energy and climate plan (NECP) by 30 June 2023, Member States must submit a final energy and climate plan by 30 June 2024. As VEKP is the Flemish contribution to the NECP, there will also be a final update of the VEKP before 30 June 2024.

The Flemish Government is constantly monitoring and, if a deficit appears for any reason, it will continue to reduce the remaining deficit by additional measures in all sectors or by accompanying federal policies such as the federal tax shift (including the legal possibility for the regions to implement a tax shift). In doing so, we will take into account that decisions taken at federal level may also have a negative impact on regional emissions (e.g. the blending adjustment for biofuels – as long as it is not compensated by additional equivalent measures – or a possible increase in VAT for renovation or demolition and reconstruction). These effects will also be taken into account in a forthcoming update of this plan.

- With a view to the final update of the VEKP in spring 2024, how functional ministries can be better empowered to achieve the sectoral objectives included in the updated VEKP will be examined. This will also make it possible to identify opportunities to strengthen financial accountability for the achievement of sectoral objectives. With a view to the final update of the VEKP as part of the final NECP, to be submitted by 30 June 2024, this draft VEKP is subject to consultation with the Advisory Councils (SERV, SALV, MORA, Minaraad) and the VEKP Monitoring Panel;
- In line with the framework of agreement in the Vision Document on the Action Plan, all line ministers are responsible for organising consultations with stakeholders in their policy area. All members of the Flemish Government undertake to launch consultations with stakeholders, where useful and possible, in preparation for the final update of the VEKP;
- A Flemish public consultation will be launched on the current VEKP project.

Region Walloon

In order to draft the updated PACE 2030, in addition to the elements from the first version of **the PACE, a steering committee** involving cabinets and administrations has been set up and had the following elements:

- The work of the Department of Energy and Sustainable Building and the AwAC, which have sectoral experts in particular;
- Setting up thematic working groups, including other administrations (transport, industries, buildings, energy poverty, etc.);
- The work of the Committee of Climate Experts set up under the Climate Decree 76
- Input from the participatory process implemented in 2021 and 2022

76 Available online: <http://AwAC.be/index.php/thematiques/politiques-actions/lespolitiques-changement-clim/politique-wallonne>

- Broad consultation of the various stakeholders (businesses, associations, social stakeholders, etc.).

The PACE has been adopted by the Government and each minister is responsible for the implementation of measures falling within his/her remit, where appropriate in collaboration with the Minister for Climate and Energy, and in collaboration with the Minister for the Environment for Air Measures.

With this in mind, each member of the Government undertakes to take part in an annual report organised in accordance with Chapter 6 of the PACE on Intra-wallonne Governance.

In summary, it provides for the following arrangements:

- In order to ensure consistency of measures and the achievement of long-term objectives, a Steering Committee, composed of one representative of each minister, meets every six months and organises the planning and implementation of PACE policies and measures. It prepares a state of play of PACE policies and measures and a work programme for the coming year. These are presented, together with the annual simplified emission inventories and energy balances, to the Government each year.
- The secretariat of the steering committee is provided by the coordination unit, set up by AWAC and SPW-Energy. The coordination unit is based on an inter-administrative working group set up by decision of COSTRA in 2020 to monitor the implementation of measures and pool information with a view to European reporting.
- Every year, before the Conference of the Parties to the United Nations Convention on Climate Change, a government point is devoted to air climate energy. During this point, and on the basis of the information provided by the steering committee, the Government may operate consultation or co-construction mechanisms concerning the practical implementation of policies and measures. The Government may also adopt additional or corrective measures necessary to achieve the objectives of the plan.
- Finally, in the context of the biennial European report, the Government may review the assumptions relating to the various sectoral objectives and adapt them, either to bring it into line with new European obligations and recommendations or in the event of major technological or cyclical changes, in line with the overall trajectory. Any adjustments must be substantiated and the assumptions underlying these adjustments will be submitted to external opinions.

Brussels Capital Region

See section above on the new Brussels regional climate governance.

1.3. Consultation and involvement of national and European bodies and its results

i. Involvement of the national parliament

Federal State

Two discussions on the federal contribution to the draft NECP have taken place in the House of Representatives since the presentation of the draft NECP in 2018. The Federal Parliamentary Committee on Energy, Climate and Sustainable Development has already shown great interest in the federal contribution to the NECP, as expressed in particular at the hearing on 2 October 2019.

On 21 September 2021, the Belgian House of Representatives published its motion for a resolution on COP26 in Glasgow, accompanied by a set of relevant recommendations⁷⁷.

There were also interparliamentary resolutions on national climate policy in 2017 and 2018⁷⁸.

Flemish Region

In March 2022, the Flemish Parliament set up a VEKP committee to examine the vision notes on energy and climate policy and the VEKP follow-up approved by the Flemish Government. At the end of its work, the Commission will make recommendations which, as far as possible and if necessary, will be taken into account in the final update of the VEKP.

Region Walloon

The Walloon Parliament was involved in the finalisation of PACE. In February 2023, the text of PACE 2030 adopted at 1st reading by the Walloon Government was presented to the Walloon Parliament's Energy and Climate Committee.

For the future, as part of the PACE's governance arrangements, it is planned to include members of the Walloon Parliament when presenting the biennial report on the plan.

Possible further interactions with the Walloon Parliament could be considered in the context of the implementation and concrete follow-up of the plan.

Brussels Capital Region

The Brussels air-climate-energy plan was presented in the Environment Committee of the Brussels Parliament on 21/6/2023.

ii. Involvement of local and regional authorities

Flemish Region

The local authorities were not consulted separately for the preparation of this draft update of the VEKP.

However, several initiatives to strengthen collaboration between the Flemish Authority and local administrations have been undertaken since the approval of the VEKP in 2019. The Energie- en Klimaatpact lokaal lays the foundations for

⁷⁷ Motion for a resolution on COP26, the UN Climate Conference in Glasgow on 21 November, Belgian Chamber of Deputies, 21 September 2021.
<https://www.lachambre.be/FLWB/PDF/55/2200/55K2200001.pdf> <https://www.lachambre.be/FLWB/PDF/55/2200/55K2200001.pdf>

⁷⁸ Motion for an interparliamentary resolution on Belgium's climate policy Preparation for COP24 (10/10/18) Approved unanimously by the Special Committee on Climate and Sustainable Development <http://www.dekamer.be/FLWB/PDF/54/3319/54K3319001.pdf>.

structural collaboration and will ensure, through mutual commitments, a strong local climate and energy policy.

Region Walloon

At the level of Wallonia, the public survey carried out in summer 2019 as part of the draft PACE of April 2018 allowed for a broad consultation process with authorities at all levels of government. Local authorities will also be involved in the implementation of the measures. The recommendations from this survey were analysed and fed into PACE 2030 and this plan.2030).

Following the public inquiry closed in August 2019, contributions were received from:

- 23 bodies
- 62 citizens
- 21 municipalities⁷⁹.

Brussels Capital Region

Before the first reading of PACE, COBRACE provides for a process of external co-construction of the preliminary draft PACE involving, in addition to Brussels Environment, as a minimum, the Brussels authorities of the economy, housing, mobility, spatial planning, heritage and urban planning.

The municipalities are consulted on PACE via the public inquiry. The public inquiry into the draft PACE ran from 20/12/2022 to 17/2/2023.

⁷⁹The public investigation procedure provides for the central role of the municipal authorities. First, they are consulted in advance of the process on the table of contents of the report on environmental impacts. Secondly, municipalities have an important role to play in the very process of the survey by relaying citizens. A total of 152 municipalities replied, but 131 simply reported that they had not received feedback from their citizens.

Brulocalis, the Association of the City and the Brussels Municipalities, as well as 9 municipal colleges (Saint-Josse-ten-Noode, Berchem-Sainte-Agathe, Auderghem, Jette, Woluwe-Saint-Pierre, Woluwe- Saint-Lambert, the City of Brussels, Molenbeek and Uccle) issued an opinion on PACE. The environmental statement explains in detail how this has been taken into account.

iii. Consultation of stakeholders, including social partners, and involvement of civil society and the general public

At the request of the NCC and CONCERE, the socio-economic and environmental advisory councils at regional and federal level are invited to issue a joint opinion on the updated draft NECP, focusing on the common part of the NECP. This opinion will be taken into account when drawing up the final NECP.

Advisory Councils have been and are also consulted in the preparation of the Entity Specific Plans.

In 2019, a joint national public consultation was organised, the results of which can be found on a joint NECP²² website. More than 60 000 citizens and organisations participated in this consultation. Under the CONCERE-CNC PNEC Steering Committee, the necessary preparations are currently underway for the launch of a public consultation on the draft NECP in autumn 2023. It will focus on inter-federal and federal measures.

In addition to these national consultation processes, each entity also conducts its own participatory processes, see below.

Federal State

Social partners and civil society

At federal level, the federal advisory bodies CFDD (Federal Council for Sustainable Development) and CCE (Central Business Council) provided input and proposals for concrete measures (see annex) through specific fund opinions, which were included up to a certain level in the MAP section in paragraphs 3.1 and 3.2.

Opinion June 2022:

At federal level, the federal advisory bodies CFDD (Federal Council for Sustainable Development) and CCE (Central Business Council) issued opinions, as in 2018 and 2019. In their opinions, they refer to previous opinions on the preparation of the NECP in 2018 and 2019. They find a number of fundamental principles on which the PFEC should build upon. They recommend to analyse the extent to which the recommendations have been incorporated into the previous plan, and to take them into account when updating the PFEC. They stressed the need for a more readable document, taking into account the structure of the Regulation, so that it can be better understood by citizens. The policies that the government intends to implement effectively must be clear. To this end, it is important to draw up the measures in concrete terms and to allocate the resources in terms of budget and staff needed for this purpose. Policy practices should also be based on existing scientific studies. In addition, a more explicit link should be established between the revision of the NECP (and thus 101)

also PFEC) and developments in the states of just transition and national and regional industrial policy. As regards EU policy, the Fit For 55 legislative package should also be taken into account.

Opinion February 2023:

This opinion on its own initiative with the Regional Environmental and Social Economic Advisory Councils also refers to the 2019 joint opinion on the draft NECP, focusing on governance elements. It recommends greater compliance with the framework imposed by the regulation concerned and the elimination of content insufficiency. In this regard, he referred to the Commission's recommendations to increase ambition, for example, also in terms of coordination and integration of actions at the different political levels. The EU Green Deal, the European Climate Law and the Fit for 55 package should also be taken into account. Furthermore, the main issue is the revision of the NECP and the importance of a concrete cooperation programme in this regard.

Multilevel climate and energy dialogue (Art. 11)

In line with the obligations of Article 11 of the Governance Regulation, more than 300 stakeholders and experts participated in the climate roundtables that took place in autumn 2022. Participants provided more than 60 written recommendations in addition to the contributions made during the thematic debates. Regional representatives also participated and responded to the debates if there was an interaction with regional policies.

Messages often repeated⁸⁰ mention that:

- climate tables add value to the federal governance framework;
- the general direction of the federal roadmaps in each of the main federal areas is supported;
- further implementation and planning is needed. The needs in terms of short-, medium- and long-term budgeting are linked to this;
- there is a need for greater coherence and coordination in which the federal policy cycle can play a central role. Strengthening the federal policy cycle was also one of the demands;
- there is a lack of alignment of policies with those of the other political levels, including those of the regions;
- in several areas, the lack of public resources to finance investments in infrastructure (transport, public buildings, etc.) and human resources is highlighted;
- there is a strong need for expertise (methods, data, etc.) in different areas for further evaluation;
- particular attention should be paid to other dimensions, including innovation, just transition, (energy) poverty and gender equality;
- a Climate Law could help close most of the gaps.

More details in the attached 'executive summary' and in the summary report of the climate roundtables⁸¹.

General public (Article 10)

In the framework of the Interfederal Energy Pact (see Annexes), a broad consultation was organised at national level, which was partly used to feed into the draft NECP. In this context, between the beginning of May and the end of June 2017, the 129 main stakeholders were consulted in writing to assess their views, expectations and needs regarding the evolution of the Belgian energy market towards and towards 2050. Almost 50 written responses to this

⁸⁰These are recommendations but not decisions of the federal government.

⁸¹ Results of the climate roundtables. Summary report of the Co-Chairs. Climate Change Service, January 2023. <https://climat.be/doc/results-climate-roundtables-2023-01-fr.pdf>

consultation were received.

In 2019, a joint national public consultation took place, the results of which can be found on a common NECP website⁸². More than 60 000 citizens and organisations participated in this consultation. Within the Concerted NQF Steering Group, the necessary preparations are ongoing for the launch of a public consultation on the draft NECP in autumn 2023. It will focus on inter-federal and federal measures.

Flemish Region

Following the approval of the Energy and Climate Plan for Flanders on 19 December 2019, consultations with the parties concerned were drawn up in a **framework of agreements** approved on 17 December 2021. This framework is based on the following principles:

- Stakeholders' expertise is sought throughout the political process. Stakeholders are motivated to take measures themselves towards their sector, members... to develop further actions to enhance the impact of VEKP measures.
- The entities implementing the measures are themselves responsible for: the organisation and type of stakeholder consultation.

The framework of agreements also regulates **the role of expertise** in universities and research institutes by setting up a VEKP monitoring committee with the following tasks:

- Issue an annual opinion on the annual progress report of the VEKP and explain it to the Environment Committee of the Flemish Parliament

Ad hoc missions to support policy preparation

On 5 November 2021, the Flemish Government enacted additional energy and climate measures in a guidance note strengthening the 2019 Energy and Climate Action Plan (VEKP). To prepare these measures, the opinions of the Flemish Strategic Advisory Councils and the Climate Monitoring Group were requested. All opinions are public and can be consulted.⁸³

The participation of civil society, entrepreneurs and knowledge institutions is organised through regular consultation in the Stroomgroepen themes **on** the following⁸⁴ topics, among others:

- Renewable energy sources
- Energy efficiency
- Flexibility
- Data

Through a Transversale Stroomgroep energie- en klimaatbeleid (Transversal Reflection Group on Energy and Climate Policy), stakeholders are kept informed about the overall process of monitoring and updating VEKP and have the opportunity to provide input.

These opinions and recommendations have been carefully examined and, where possible, included in this draft

⁸² plannationalenergieclimat.be

⁸³ The opinions of the VEKP Monitoring Panel and the Strategic Advisory Councils are published at:

<https://www.vlaanderen.be/veka/beleid/vlaams-energie-en-klimaatplan-vekp-2021-2030>

⁸⁴ <https://www.vlaanderen.be/veka/beleid/vlaams-energie-en-klimaatplan-vekp-2021-2030#participatie>

update of the VEKP. As far as possible, this contribution will continue to be taken into account also in the context of the further operationalisation of the VEKP.

Region Walloon

In accordance with the DPR, the GW took note in July 2020 of the organisation of a participatory process, led by an independent structure, selected on the basis of a public procurement on the choice of measures to operationalise PACE in the medium and long term.

Three types of audiences have been identified and have been the subject of specific consultation and co-construction schemes.

As regards the Citizens' Panel and the consultation of young people in particular,

- recommendations for policies and measures depending on levels of government other than the Walloon Region have been forwarded to the competent authorities for analysis;
- policies and measures related to Walloon competences, but considered outside the scope of the PACE, will be forwarded to the ministers responsible for analysis;
- policies and measures under Walloon competences and corresponding to the PACE framework have been integrated into the PACE framework. In the event of disagreement on the full or partial integration of these, a justification for the refusal will be sent to the members of the Citizens' Panel and to the Youth Forum.

- ***Citizens, through the Citizens' Panel***

The panel was held from April to December 2021 for a total of 13 days of sharing, with a public restitution of the works on 13 March 2022. It was set up by a consultancy office (SONECOM), which was commissioned to select 50 citizens (and 25 alternates) by drawing lots from 5.000 households, illustrating as much as possible the diversity of Walloon citizens' profiles. The overall set of criteria was as follows: gender, province/district, rural or urban habitat, age, socio-occupational status, level of education. A consultancy office was responsible for the preparation of the animation (Tr@me SCRL).

After identifying and prioritising the issues at stake, the panellists exchanged from 5 topics: to house, eat, move, work/study, grow/grow. On the basis of these discussions, and input from experts and stakeholders, 168 recommendations were identified and prioritised according to an impact/acceptability matrix by the panel. These recommendations are available online⁸⁵.

- ***Young people through the consultation conducted by the Youth Forum***

A call was launched among young people aged 16-30 through the project "Your Voice for Climate" carried out in collaboration with the Youth Forum. It invited young people to share their ideas on concrete measures to be implemented locally to fight climate change. The consultation took place through fun animations and an online questionnaire, between November 2021 and February 2022, and the results were summarised in a report containing 87 recommendations⁸⁶. The Jugendbüro, a representative body for young people in the German-speaking community, also provided contributions to this consultation.

⁸⁵<https://www.leswallonsnemanquentpasdair.be/uploads/recommandations/Le-cadre-logique-du-Panel-Citoyen-Climat-220123VF.pdf>

⁸⁶<https://forumdesjeunes.be/avis-officiels-positions/donne-ta-voix-pour-le-climat-le-rapport-est-sorti/>

- ***Other relevant stakeholders and sectors, as well as the Committee of Experts set up by the Climate Decree, through written and oral contributions***

A wide range of stakeholders were consulted and made a series of recommendations, both on the vision and on the objectives, policies and measures to be developed in PACE 2030. The participatory process initiated in the context of the construction of the Wallonia Recovery Plan (“Get up Wallonia” process) has also been a source of inspiration. Their contributions were sent spontaneously or in response to invitations from various departments, as well as through meetings and exchanges with both the administrations and the cabinet of the Minister for Climate. Several economic, social and civil society stakeholders interacted with the Citizens’ Panel and produced their vision for 2030 in this context, while the energy sectors were consulted at the beginning of 2022 by AWAC and SPW Energie. The Walloon Committee of Climate Experts (CWEC) has delivered an opinion. It is therefore a wide variety of expertise that has been expressed through this open participatory process.

In addition, on 9 and 30 November 2021, a panel was set up with **SPW staff** to exchange views on PACE and its link in their missions. This process has not been extended to PAUs for practical aspects, including access to staff databases. The coordination of the process took place in close cooperation with AWAC and COSTRA. In a difficult health situation, 50 SPW staff met during the first half day and 25 at the 2th meeting. At the session of 30 November 2021, staff had the opportunity to exchange with 6 ambassadors of the Citizens’ Panel.

They highlighted various elements relating to the internal functioning of the Walloon administration, which could be discussed with COSTRA with a view to considering the introduction of concrete measures within the SPW. This will be the subject of a specific point at a later stage, after presentation of the results of the process to COSTRA.

PACE was **approved in 1st^{reading} on 15 December 2022**, followed by a **stakeholder consultation process**; 35 delivered opinions, of which 7 were own-initiative opinions. This consultation revealed the need to implement the ambitions of this plan through significant changes. The opinions reflect a shared will to build ambitious climate policies and with effective follow-up. The final plan has been adjusted according to the inputs of this process before being incorporated into this plan.

Brussels Capital Region

The Brussels Code of Air, Climate and Energy Management provides that Bruxelles Environnement is to submit the draft Air-Climate-Energy Plan (PACE) and the related environmental impact report to a public inquiry. The latter took place from 20/12/2022 to 17/2/2023, in accordance with those provisions.

With a view to encouraging the Brussels population to express their opinion on this new draft Air-Climate-Energy Plan, an online questionnaire has been created. It followed the structure of the summary and included references to the draft plan. Citizens from Brussels were therefore called upon to read the draft Air-Climate-Energy Plan or its summary. The questionnaire contained 26 questions. No questions were required. An email address was also created to gather citizens’ views.

Articles 1.4.10 and 1.4.6 of COBRACE provide that "In the context of the public inquiry, Bruxelles Environnement shall submit the draft plan and the environmental report to the following bodies for their opinion:

- The Environment Council of the Brussels-Capital Region
- The Council of Electricity and Gas Users
- The Housing Advisory Council
- The Regional Mobility Commission
- The Regional Development Commission

- Brupartners (the Economic and Social Council of the Brussels-Capital Region)
- Brulocalis (Association of the City and Municipalities of the Brussels-Capital Region)

A list drawn up by the Government of the public authorities likely to be affected by the implementation of the plan'. These other public authorities chosen by the Brussels Government are as follows:

- Brugel, Brussels energy regulator.
- Sibelga, distribution system operator.

The public survey, the consultation of the bodies concerned, the online questionnaire and the [email address planclimat@environnement.brussels](mailto:planclimat@environnement.brussels) collected 3693 opinions. The following table summarises the opinions received by type of issuer.

Summary of the number of opinions received			
Respondents	Electronic Address	Online questionnaire	Total
Individuals	25	3536 (33 % response rate)	3561
Regional councils, regional bodies, and administrations	12	2	14
Municipal colleges, and Brulocalis	10	1	11
Associations, organisations and private companies	19	19	38
Political party	0	1	1
Type of issuer not specified	0	69	69
Total	63	3628	3694

Table 17: Summary of the number of opinions received public inquiry 2022-2023 on air-climate-energy plan.

Concerning the online questionnaire, 3628 replies were submitted. As answers to questions are not mandatory, the number of answers to each question is lower (on average, for each question, 33 % of respondents completed the question).

The environmental statement explains in detail how these inputs have been taken into account.

iv. Consultation of other Member States

Bilaterally, there are no specific initiatives on the exchange of information on the draft PFEC update. For Belgium, the consultation with neighbouring countries and the other Member States takes place rather in a context of regional cooperation (see Infra 1.4.). This will also be further developed in the context of the update of the NECP.

Flemish Region

Flanders is part of the regional consultation at national level.

Region Walloon

There are many common challenges for the Member States in all the dimensions described in this plan.

As regards the Walloon Region (and in keeping with regional competences), there is great interest in working with the North-Rhine Westphalia, Rhineland-Palatinate, Saarland, Lorraine, Luxembourg, etc.

Structurally, participation in the bodies of the Greater Regions can be noted with the adoption of the Joint Declaration of the Greater Region Summit.⁸⁷ The Joint Declaration adopted at the 18th Executive Summit on 31 January 2023 includes commitments relating to cooperation in the fields of renewable energy and hydrogen.

The work will deepen mutual knowledge of technological strategies and solutions with a lower environmental impact on transport and mobility, in order to encourage the sharing of best practices from the various partners.

As regards hydrogen cooperation more specifically, the Greater Region's executives share the wish to make it the first cross-border hydrogen laboratory in the European Union. Four priorities identified structure this common will: establishing a cross-border hydrogen ecosystem, hydrogen transport across borders, decarbonising the transport sector, and developing a multilingual and cross-border training offer. This ambition can be built on the basis of concerted evidence, analysis and public decision support tools to provide useful evidence and support a coherent strategy for the deployment and cross-border transport of hydrogen. It is now necessary to establish a framework for consultation to study the various scenarios according to the technical possibilities of the regions (network capacity, means of production, etc.), financial elements (H₂ production costs, construction costs of hydrogen pipelines, potential contributions to national and European public funds, etc.) and in accordance with the national policies in force.

More generally, in response to the need to adapt the labour market to the environmental, energy and climate transitions, initial discussions were carried out, in particular, within the EURES Greater Region network at a seminar on 17 June 2022 (Metz) on skills and expected jobs in the field of hydrogen, and in the context of the work of the Interregional Employment Market Observatory (OIE) through its analysis of labour market transformations (carried out on behalf of the Economic and Social Committee of the Greater Region). Recruitment tensions in many industrial activities, the lack of attractiveness of these professions to attract future workers, and competition between industrial sectors and between countries in border areas to recruit skilled professionals, pose a real risk that could hinder the development and deployment of the hydrogen sector. The analyses carried out therefore show the value of developing a training offer in line with the structuring of an emerging hydrogen sector on both sides of the borders and taking into account the cross-border dimension of employment and training issues, by means of an approach to identifying skills needs and opportunities within the Greater Region.

Finally, participation in the study "Cross-Border Hydrogen Backbone in the Benelux and Neighbouring Regions" launched by the Benelux Union, which brings together its adjacent border territories (territories of the Greater Region and Hauts-de-France, Lower Saxony, Nordrhein-Westphalia), in order to obtain precise and detailed data on the opportunities, constraints and opportunities associated with the development of H₂ pipelines in the various territories covered by the study.

In the light of all the above challenges relating to the hydrogen sector, both in terms of the development and deployment of technologies and infrastructure and the development and transformation of skills, the political

⁸⁷18th Summit of Executive of the Greater Region – Greater Region [https://granderegion.net/Actualites/2023/XVIIIe-Sommet-des- Executifs-de-la-Grand Region](https://granderegion.net/Actualites/2023/XVIIIe-Sommet-des-Executifs-de-la-Grand-Region)

authorities of the Greater Region have asked the European Commission to recognise the Greater Region as the first cross-border European testing laboratory capable of supporting new production, distribution and consumption methods (industries to be decarbonised, passenger and freight transport, road, inland waterways and rail transport).

v. Iterative process with the Commission

The Commission has been invited to participate in the Regional Energy and Climate Dialogue for 2030 as part of the preparation of the current National Action Plan for Growth and Jobs. The Commission has expressed its enthusiasm for this initiative and will continue to participate at the request or initiative of the Member States.

At national level, several informal consultation meetings were held with the Commission in the context of the drafting of the current NECP. This was the case once for the current update. Most of the exchanges take place at technical level through the meetings of the EUC and CCC and via the ICF consultants designated by the EC for the follow-up of ITS requests, which are requested by BE. This will be described in more detail in the final update of the NECP.

Federal State

Federal representatives of DG Energy of the FPS Economy and the Climate Change Service of the FPS Environment are also actively involved in the technical working groups, since 2022 EUC-CC and the various Commission working groups (DG Development Cooperation and Humanitarian Aid) on updating the NECP.

Flemish Region

On 18 June 2019, the European Commission forwarded its recommendations on the draft NECP to Belgium. During the preparation of the final NECP, Belgium made adjustments that fully or partially addressed these recommendations, as evidenced by the review of the final NECP by the European Commission on 14 October 2020. The table below summarises the main recommendations of the European Commission which had not yet been fully addressed according to the assessment of 14 October 2020, and the adjustments made to this updated VEKP project on this basis.

Description of the recommendation	How this plan complies with this recommendation
Additional information measures on emissions from sectors not covered by the ETS.	The plan describes the policy lines and measures for the different sectors in more detail, as far as possible, than in the initial plan. In the chapter of the projections, these are refined and more based on bottom-up calculations (bottom-up). The description of policies in the buildings sector has been moved from the chapter on energy efficiency to the chapter on decarbonisation, and restructured, which is expected to improve the readability of this important section.
Explain the use of flexibility between ESR, LULUCF and ETS	Flanders wishes to invoke the flexibility provided for in Article 6 of the Effort Sharing Regulation

Raising the level of ambition for renewable energy by 25 % as an indicative Belgian target, and further clarifications	Planned production from renewable energy sources in the Flemish Region increases from 28.512 GWh to 31.974 GWh and represents the Flemish contribution to the Belgian total indicative renewable energy target
Increasing the level of ambition of the EE by reducing final consumption	In the context of energy efficiency, the Flemish Region has planned various additional measures in the different sectors of industry (both ETS and ESR), residential buildings, non-residential buildings and agriculture.

Clarification of national targets and funding targets for R & I and competitiveness	The description of current and planned R & I measures is very broad
Improved quantification of information on investment needs and assessment of sources of financing	Since 2022, the VEKP progress report includes an estimate of the budgetary cost per measure. The investment needs of this draft update will be supported by an impact assessment in the period 2023-2024.
List of energy subsidies, including those for fossil fuels, and measures and plans to eliminate gradually those latest	For the Flemish Region, a list of energy subsidies will be added to the National Energy and Climate Plan, including plans for phasing out subsidies for fossil fuels.
Analysis of air quality policy interactions and emissions into the atmosphere, including quantitatively	See update of the luchtbeleidsplan (Flemish air policy plan)

TABEL 18: overzicht van de belangrijkste aanbevelingen van de Europese Commissie VEKP 2020

Region Walloon

The European guidelines (evaluation of the 2019 NECP⁸⁸ and guidance⁸⁹) have been taken into account as far as possible in the drafting of this plan, within the limits of regional competences.

Brussels Capital Region

The European guidelines (evaluation of the 2019 NECP⁹⁰ and guidance⁹¹) have been taken into account as far as possible in the drafting of this plan, within the limits of regional competences.

1.4. Regional cooperation in drawing up the plan

i. Elements subject to joint planning or coordinated with other Member States

Belgium has well-developed structures for regional cooperation and coordination on energy and climate issues, and regional cooperation opportunities are being explored in the Benelux, extended to the Penta Pentalateral Forum countries (i.e. BE, NL, LUX, FR, DE, AT and CH as an observer). In 2022, the main work was to implement the Risk Preparedness Regulation.

Also in the context of North Sea cooperation, i.e. under the North Sea Energy Cooperation (NSEC), an initiative is being

⁸⁸ "Assessment of the final national energy and climate plan of Belgium" (14/10/2020)

(https://energy.ec.europa.eu/system/files/2021-01/staff_working_document_assessment_necp_belgium_fr_0.pdf)

⁸⁹ Draft Commission Notice on the Guidance to Member States for the update of the 2021-2030 national energy and climate plan (15/11/2022) (https://energy.ec.europa.eu/communication-and-annex-guidance-ms-updated-necps-2021-2030_en)

⁹⁰ "Assessment of the final national energy and climate plan of Belgium" (14/10/2020)

(https://energy.ec.europa.eu/system/files/2021-01/staff_working_document_assessment_necp_belgium_fr_0.pdf)

⁹¹ Draft Commission Notice on the Guidance to Member States for the update of the 2021-2030 national energy and climate plan (15/11/2022) (https://energy.ec.europa.eu/communication-and-annex-guidance-ms-updated-necps-2021-2030_en)

prepared under the Dutch Presidency to include a common paragraph in the respective draft plans on this cooperation with the NSEC Member States, namely BE, NL, LUX, DE, FR, IE, DK, NO, SE. (Point ii)

Regions also have specific partnerships with regional partners (see below).

ii. Explain how regional cooperation has been addressed in the plan

Federal State

Benelux

At the meeting of the Benelux Directors-General for Energy on 27 January 2023, it was requested to update the common paragraphs of Penta and NSEC in the chapter on regional cooperation.

Pentalateral Energy Forum (Penta)

At a meeting of the Directors-General of the Penta countries on 18 December 2022, coordinators were asked to adapt and update the joint paragraph agreed in 2019.

The Penta collaboration on the Integrated National Energy and Climate Plans (iNEKP) took shape at the launch event of the “Regional Energy and Climate Dialogue 2030” on 27 June 2018 for the Directors-General for Energy and Climate and experts from all Penta Member States. The Penta Member States have already shown their commitment on the basis of this initiative and follow-up on how to proceed in the coming months will be ensured, with a view to the delivery of the final projects and plans by 31 December 2018 and 2019 respectively.

A political declaration was signed on 4 March 2019, formalising Penta’s regional cooperation on NEKP.

This joint text was agreed between the Directors-Generals in May 2023:

Pentalateral Energy Forum – Platform for Regional Energy Cooperation

The Pentalateral Energy Forum (Penta) is a voluntary regional cooperation between Belgium, France, Germany, Luxembourg, the Netherlands and, since 2011, Austria. These countries account for more than 40 % of the EU population and cover more than 50 % of electricity production in the EU. Switzerland joined the Forum as a permanent observer in 2011 and actively contributes to technical work and decision-making. In close cooperation with the European Commission (upon invitation), the Pentalateral Energy Forum strengthens cooperation between all stakeholders to contribute to a reliable, decarbonised and efficient electricity system based on integrated and well-functioning markets. As the electricity sector plays a crucial role in decarbonising all our societies by 2050 at the latest, the Penta countries aim to further increase the share of renewables and fully decarbonise their electricity system as soon as possible and ideally by 2035.

Cooperation is led by ministers responsible for energy policy, who meet regularly. The activities are monitored by the Penta coordinators under the direction of the respective Directors-General of the Penta countries. The work programme is implemented by ministries, transmission system operators (TSOs), distribution system operators (DSOs), regulatory authorities and market participants who meet regularly in four thematic support groups. In order for each support group to achieve its objective, exchanges between and within support groups are strongly encouraged and supervised at the level of penta coordinators. The Support Groups also liaise with other international fora, such as the North Seas Energy Cooperation.

As the transition to a decarbonised energy system is accelerating, countries are becoming increasingly interdependent and regional cooperation is becoming increasingly important to address challenges. The Pentalateral Energy Forum is well placed to address many of these challenges, for example by working on security of supply, market integration, energy efficiency and decarbonisation. Over the past two decades, Penta countries have moved from a purely national

political perspective on energy markets to a regional approach. The Penta countries are therefore ideally placed to contribute to the next phase of the energy transition.

Supply security

Security of supply has been at the heart of the Pentalateral Energy Forum since its creation. From the outset, countries have been cooperating closely to foster security of supply and to prevent, prepare and manage electricity crises in a spirit of solidarity and trust. Important milestones have been achieved through various regional adequacy assessments, common crisis exercises and a common framework under Regulation (EU) 2019/941 on risk preparedness in the electricity sector.

Today, work on security of supply is organised in a dedicated support group, structured by two main work streams: resource adequacy assessment, on the one hand, and risk preparedness, on the other. Future work is planned for these two work streams as well as for the interface between them.

Resource adequacy assessment

As regards resource adequacy assessments, Penta countries will work together with the European studies carried out by ENTSO-E (European Resource Adequacy Assessment, Seasonal Outlook) to improve alignment and usefulness for Penta countries. Based on extensive expertise and knowledge in this area, additional sensitivity analyses could be carried out by Penta's TSOs, focusing on the Penta region and taking into account regional specificities and cross-border interdependencies. The topics that deserve further consideration at regional level are:

- The articulation between national energy system planning, the implementation of the TEN-E Regulation and the rapid evolution of the European energy system.
- The role of demand side response and other flexibility resources for system adequacy.
- Improved methods for assessing resource adequacy.
- The need to increase network capacity and optimise the existing network.
- Analysis of critical situations and possible countermeasures.

Risk preparedness

As regards risk preparedness, the objective is to foster regional cooperation in the Penta region with a view to preventing, preparing and managing electricity crises in a spirit of solidarity and transparency and in full compliance with the requirements of a competitive internal market in electricity and the operational security procedures of TSOs. The Penta countries will seek efficiency solutions between all relevant entities involved in crisis management and between European, regional and national levels. As such, work will focus on the implementation of the Memorandum of Understanding on Risk Preparedness in the Electricity Sector, signed on 1 December²⁰²¹, and in particular on:

- Analysis and evaluation of regional measures, including the technical, legal and financial provisions necessary for their implementation.
- Organisation of regional exercises.
- Review of the regional electricity crisis scenarios for the Penta region in close cooperation with ENTSO-E and the Commission on the applicable methodologies.
- In the event of an electricity crisis within Penta, application of the agreed framework.

Interface between resource adequacy assessment and risk preparedness

In addition to the above, Penta countries will also work at the interface between resource adequacy assessments and risk preparedness. A first step was taken with the Penta study on methodological improvements of Resource Adequacy Assessment, which examined differences and overlaps. Penta countries will seek to close the existing gaps between long-term analysis and short-term operational planning, technical and political decision-making, as well as between countries. More specifically, Penta countries intend to support the development of analytical tools and procedures for information exchange and decision-making, closely involving ministries, TSOs, regulatory authorities, as well as ACER, ENTSO-E, EU DSO and regional security centres located in the Penta region (i.e. Coreso and TSCNET).

Market integration

The Pentalateral Energy Forum has two decades of experience in market integration. During this period, Penta witnessed and driven major changes in the political landscape, with the most important steps being the introduction of flow-based market coupling, first in the Penta region, and now in a larger part of continental Europe.

Promoting future-proof market design

In recent years, work on market integration within Penta has expanded in terms of accents and topics. Ministers Penta put hydrogen firmly on the national and European agenda as a key element for system and market integration. The newly created SG4 actively contributes to the development of an integrated European hydrogen market.

The Pentalateral Energy Forum also aims to contribute to the integration of renewable energy and the development of a future decarbonised electricity system, in which integrated markets play a crucial role. More recently, two studies have been carried out: “Vision 2050” and “Flexibility”. These studies were carried out in the framework of Support Group 3 (SG3) on the future electricity system and will serve as a basis for the future work of the Penta Forum.

The Vision 2050 report compares national decarbonisation scenarios and proposes basic elements for a common political vision of the future electricity system. These building blocks describe the elements necessary for the efficient development of a future electricity system. The Penta countries will continue their work on the Vision 2050 project by drafting a political declaration that will contain a common vision for the future integrated energy system.

In order to develop this future electricity system, the Penta countries recognise the need for a future-proof market design and will actively exchange on improving and implementing electricity market regulation, while highlighting areas where further work is needed. Based on their past experience, the Penta countries will work together to identify welfare gains from an integrated and market-based approach to policy issues that can materialise. They will also continue to organise technical exchanges and projects that contribute to the effective implementation of energy policies in the Penta regions.

Flexibility

The Flexibility Report provided additional information on the current and future state of flexibility in the region. It describes the needs and sources of flexibility in 2030/40/50, driven by the integration of renewable energy, and shows that cooperation can lead to significant synergies between countries, thus reducing overall flexibility needs. The report also provides important recommendations on how to promote flexibility in the region and potential measures to improve flexibility for market participants. Therefore, the Penta countries:

- exchange on the harmonisation of non-standardised products such as network services (e.g. redispatching and topological remedial measures);
- discuss how to facilitate the contribution of flexible behaviour of market participants to the balance of the energy system through wholesale markets and to the operation of electricity networks in a secure and

stable manner;

- follow the development of technical requirements for additional electricity demand (e.g. heat pumps and other sources of flexibility) to ensure interoperability so that additional electricity demand is truly flexible;
- work together on the implementation of flexibility provisions in future EU legislation, such as the electricity market reform and the network code on demand response. As far as possible, the Penta countries will endeavour to take into account the flexibility needs of the region when developing national policy.

Energy efficiency

The Pentalateral Energy Forum recognises the importance of increasing energy efficiency as a means of reducing dependence on fossil fuels and mitigating the scale of the challenge of the energy transition. In this respect, the Penta considers it important to save energy and to make energy demand more flexible. The Penta countries exchanged on the implementation of the electricity demand reduction obligation imposed by EU legislation for winter 2022/2023.

The Penta countries will continue to work together by exchanging on the implementation of the revised Energy Efficiency Directive and best practices on energy savings.

Decarbonisation

As described above, and building on previous work on Vision 2050, Penta countries continue to work towards a common political vision on a decarbonised electricity system, which should be achieved as soon as possible and ideally by 2035. The Penta countries will work together to further develop renewable energy and raise awareness of the importance of flexibility to move towards a fully decarbonised electricity system without losing security of supply. The Penta countries fully recognise the importance of better regional cooperation and seek to improve it in order to exploit synergies and achieve efficiency gains. The Penta countries will explore the added value of additional regional cooperation on renewable energy integration, grid planning, offshore and onshore connection (in cooperation with North Seas Energy Cooperation) and addressing other issues with a cross-border impact that may arise in the transition to a decarbonised electricity system.

Hydrogen

In 2020, a dedicated Hydrogen Support Group was set up to advance Penta's work and close cooperation in the field of hydrogen. SG4 focuses on regulatory and market developments for hydrogen deployment in Penta countries, in relation to the national, European and international framework. Based on the political declaration on the role of hydrogen in decarbonising the energy system in Europe signed in 2020 and recent developments, including REPowerEU and the IEA report "A 10-Point Plan to Reduce the European Union's Reliance on Russian Natural Gas", Penta countries exchange information and develop common positions on future market design for hydrogen deployment developments. In particular, SG4 will continue to work on the development of hydrogen certification, the emerging hydrogen infrastructure in the Penta region and the necessary measures to develop cross-border interconnections. It will also monitor progress in the implementation of Penta countries' hydrogen strategies by looking at regulatory development, support mechanisms, investment, changes in supply and demand, trade, among others.

North Seas Energy Cooperation (NSEC)

At a meeting of the Directors General of the NSEC on 8 February 2023, the coordinators were mandated to update the joint paragraph included in the chapter on NSEC cooperation in 2019.

This joint text was agreed between the Directors-Generals in June 2023:

North Seas Energy Cooperation

Belgium is part of the North Sea region, which has significant renewable energy potential. The deployment of offshore wind energy will play an increasingly important role in achieving Europe's energy and climate objectives. The EU offshore energy strategy set the ambitious target of an installed capacity of 300 GW for offshore wind and 40 GW for ocean energy by 2050. On 19 January 2023, the North Sea Energy Cooperation (NSEC) facilitated the development of a non-binding agreement on offshore renewable energy production targets in 2050 with intermediate steps in 2040 and 2030 for the North Sea priority grid corridor under the TEN-E Regulation. The objectives for the NSOG priority offshore network corridor are 60.3 GW in 2030, between 134,9 and 158 GW in 2040, and between 171,6 and 218 GW in 2050. This represents a significant change of scale for the offshore sector, renewable energy deployment and integrated strategic offshore development. High energy prices, for example in 2022, and geopolitical events threatening the European energy system have highlighted the need to accelerate the deployment of national renewable energy generation capacities and offshore transmission networks at regional level as quickly as possible, thus significantly improving energy security.

Belgium is working with the other NSEC countries to identify, analyse and realise concrete cooperation projects. The NSEC is a voluntary, bottom-up, market-oriented regional cooperation initiative, established in 2016, which aims to:

- creating synergies;
- avoid incompatibilities between national policies;
- share knowledge on international best practices;
- promote common strategies where possible and beneficial.

Energy ministers meet regularly in the framework of the NSEC. In 2023, the NSEC will be composed of Belgium, Denmark, France, Germany, Ireland, Luxembourg, the Netherlands, Norway and Sweden, with the participation of the European Commission. On 18 December 2022, the Nordic Energy Ministers and the European Commissioner for Energy signed a Memorandum of Understanding on cooperation with the United Kingdom on offshore renewable energy. The establishment of this Memorandum of Understanding was provided for in the Trade and Cooperation Agreement between the European Union and the United Kingdom of 30 December 2020, builds on the NSEC and is distinct but complementary to the NSEC framework.

For the offshore wind sector, it is essential to provide a predictable and stable operating environment in the long term in order to facilitate long-term investments and further reduce costs. To this end, existing barriers need to be removed and attractive investment conditions created. NSEC members are working together to make an important contribution to achieving these objectives through a regular multi-topic exchange of expertise within the four NSEC Support Groups (SG):

- SG1 development of hybrid projects and commonals;
- SG2 permits, spatial planning maritime and environmental considerations;
- SG3 financing and support frameworks;
- SG4 long-term planning of the network and infrastructure.

In order for each support group to achieve its objective, exchanges between and within support groups are strongly encouraged and supervised at the level of penta coordinators. The following examples illustrate this approach: ports (SG1 and SG4), maritime spatial and network planning (SG2 and SG4), and how non-tariff criteria can enhance innovation on key challenges for accelerated, cost-effective and responsible deployment of offshore wind energy (SG1, SG3 and SG4). Finally, support groups work closely with other international fora, such as the Pentilateral Energy Forum and the Clean Industrial Forum, on terrestrial network planning, market agreements and stakeholder engagement.

Development of hybrid and joint projects

The NSEC SG1 serves as a platform to collaborate on potential offshore wind projects concepts and coordinated electricity infrastructure, including transmission infrastructure. The group's activity has intensified as NSEC countries have launched more joint and hybrid projects in the North Sea, to facilitate technical and ministerial discussions and the sharing of best practices as projects progressed.

In addition to joint projects on offshore wind, which will be connected and supported by several countries, the Support Group is also working on possible 'hybrid' solutions that use cross-border options to connect offshore wind farms to more than one electricity market and create synergies between countries, as well as on relevant EU and national market provisions.

Therefore, SG1 members are developing opportunities for collaboration on hybrid projects as well as on possible legal, regulatory and commercial barriers. SG1 will continue to work on obstacles and milestones of hybrid and joint projects, which can be addressed at national and regional level. In addition, *collaboration* will continue to function as a forum for reflection on how to work on issues related to legislative processes at EU and national level.

Permits, maritime spatial planning and environmental considerations

To achieve our energy and climate objectives in the EU, it is necessary to speed up planning and permitting procedures at European and national level and at the same time to better understand the possible ecological limits of large-scale wind development in the North Seas and the impacts on other users of the sea. SG2 has compiled an inventory of spatial tensions of offshore wind farm developments up to 2030 at regional sea level. The next steps will be to better define ecological tensions and potential threats to development and to define spatial strategies to avoid or mitigate these threats. In order to improve knowledge and support the deployment of wind energy in the North Sea, North Sea countries will continue to cooperate closely on maritime spatial planning, environmental research and cumulative impact assessment of wind farms between energy, maritime spatial planning and environmental authorities.

Financing and support frameworks

Offshore tenders are a central topic for funding and support frameworks. NSEC members coordinate offshore tenders by sharing information on national tender schedules under SG3. Within the Working Group, countries also exchange best practices on tender design, grant free support, design elements supporting system and sector integration, as well as network connection schemes. In order to achieve these ambitious objectives, it is becoming increasingly important to implement joint projects.

This is why the Group is also looking at funding opportunities for joint cross-border offshore projects, including through EU financial instruments such as the Connecting Europe Facility and the EU Renewable Energy Financing Facility. Finally, Power Purchase Agreements (PPAs) play an increasingly important role in financing offshore projects. Countries will address problems, obstacles and solutions for the wider adoption of PPAs. In addition, the group exchanges on decommissioning, lifetime extension and energy replenishment of wind farms.

The aim of these exchanges is also to jointly develop and discuss ideas for the medium-term future of the offshore energy system in terms of installed capacity, for example through coordinated tender schedules.

Delivery 2050: long-term network and infrastructure planning

NSEC SG4 works with ENTSO-E to provide and coordinate contributions to the offshore grid development plan for North Seas offshore networks under the EU TEN-E Regulation. In addition, SG4 aims to broaden the discussion on long-term grid planning to also include early development and increase of offshore green hydrogen production and transport, as well as its potential role in an increasingly interconnected North Sea energy system. Green hydrogen will play an important role in decarbonising our energy system. Power-to-X, and in particular hydrogen, will play a key role in providing flexibility where and when needed. Hydrogen demand is expected to grow significantly, especially after 2030, due to its potential as a storage energy carrier and as a fuel and feedstock for hard-to-electrify activities. Several NSEC countries have announced targets for green hydrogen production on land and at sea. Under SG4, NSEC countries will exchange their first experiences with hydrogen in connection with offshore wind, and exchange knowledge on transport infrastructure, renewable energy development and offshore power-to-X production. They will work together to provide information on offshore hydrogen production, to discuss electrolysis deployment and to increase synergies between long-term offshore grid planning and hydrogen network planning. In all aspects of medium- and long-term infrastructure planning, SG4 underlines the importance of broad engagement in this planning process with Member States and relevant stakeholders, including industry and NGOs, in order to anticipate and remove supply chain bottlenecks (e.g. port development and availability) in the deployment and acceleration of the development of our energy system in the North Sea. This is closely linked to the importance of maintaining the security of offshore and submarine critical infrastructure, as well as the supply of critical raw materials, through innovation and better circularity.

2. NATIONAL OBJECTIVES AND TARGETS

2.1. Decarbonisation dimension

2.1.1. Greenhouse gas (GHG) emissions and removals

With the adoption of the European Climate Law on 26 June 2021⁹², the European Union has enshrined in legislation the objective of a climate-neutral Union by 2050 at the latest. The law also sets the intermediate target of reducing net greenhouse gas emissions by at least 55 % below 1990 levels by 2030. To achieve the 2030 target, EU energy and climate legislation has been revised.

To this end, the Commission proposed more ambitious targets for the EU Emissions Trading System (ETS), the ESR sectors (through the Effort Sharing Regulation) and land use, land use change and forestry (LULUCF) in particular, as part of the Fit for 55 package in summer 2021. Political agreement on these files between the Council and the European Parliament was reached at the end of 2022, with an increase in the EU ETS target from -43 % to -62 % by 2030 compared to 2005, for the non-ETS sectors from -30 % to -40 % by 2030 compared to 2005 and an EU target of net absorption of 310 MtCO₂eq in 2030.^{93; 94.}

1. The elements referred to in Article 4(a) (1) of the Governance Regulation

Objective of the ESR

Belgium's target for the ESR sectors (buildings, transport, businesses, agriculture, non-ETS industries, waste, etc.) was set at European level, following the negotiations at the time. The initial target (-35 %) was set in "Regulation 2018/842 of 30 May 2018 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 to contribute to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013". As mentioned above, the European Commission presented in 2021 a proposal for a revision of this Regulation, which was approved by the European Parliament and the Council of the European Union at the end of 2022. By amending Regulation (EU) No 857/2023, the Effort Sharing Regulation has been amended and the Belgian target increased from -35 % to -47 % compared to 2005.

At present, the individual entities' political commitments to the Belgian emission reduction target are as follows:

The Federal State	Contribution to the 47 % reduction target by 2030 compared to 2005
Flemish Region	40 % reduction by 2030 compared to 2005
Region Walloon	47 % reduction by 2030 compared to 2005
Brussels Capital Region	47 % reduction by 2030 compared to 2005

TABEL 19: Politieke Engementen van de verschillende entiteiten tot de Belgische emissiereductiedoelstelling 2030

92 Regulation (EU) 2021/1119 of the European Parliament and of the Council, eur-lex.europa.eu, 30 June 2021. <https://eur-lex.europa.eu/uri=celex/32021R1119>

93 In shape for 55: Council and Parliament reach provisional agreement on the EU Emissions Trading System and Social Climate Fund, European Council, 18 December 2022. <https://www.consilium.europa.eu/en/press/press-releases/2022/12/18/fit-for-55-council-and-parliament-reach-provisional-deal-on-eu-emissions-trading-system-and-the-social-climate-fund/>

94 In shape for 55: EU strengthens emission reduction targets for member states, European Council, 8 November 2022. <https://www.consilium.europa.eu/en/press/press-releases/2022/11/08/fit-for-55-eu-strengthens-emission-reduction-targets-for-member-states/>

Based on the ESA objective, a trajectory is defined that determines the Belgian emission allowance. This trajectory is defined for Belgium in three sub-trajectories:

- For the years 2021-2022:
 - o The starting point for the trajectory is in May 2019 on average ESA emissions for the years 2016, 2017 and 2018.
 - o The end point of the trajectory is in 2030 and is set at the level of ESR emissions in 2005, reduced by the initial reduction target (i.e. before the recent Fit for 55 revision) set for Belgium in the ESR of 35 %.
 - o The linear trajectory thus set then determines the annual emission envelope for the years 2021 and 2022. This annual emission envelope for the years 2021 and 2022 corresponds to the emission envelope for those years determined by the European Commission in 2020⁹⁵.
- For the years 2023-2025:
 - o The starting point for the sector is set in 2022 at the emission envelope determined in the first sub-runway for 2022.
 - o The end point of the trajectory is in 2030 and is set at the level of ESR emissions in 2005, reduced by the revised 47 % reduction target set for Belgium in the ESR.
 - o The linear trajectory thus established then determines the annual emission allocation for the intermediate years 2023 to 2025.
- For the years 2026-2030:
 - o The starting point for the trajectory is set in October 2023 on the basis of the average emissions for the years 2021, 2022 and 2023.
 - o The end point of the trajectory is in 2030 and is set at the level of ESR emissions in 2005, reduced by the revised 47 % reduction target set for Belgium in the ESR.
 - o The linear trajectory thus established then determines the annual emission allocation for the intermediate years 2026 to 2030.

⁹⁵<https://eur-lex.europa.eu/legal-content/NL/TXT/PDF/?uri=CELEX:32020D2126&from=EN>

The European Commission will still adopt implementing decisions to set the emission allocation for the years 2021-2030 in accordance with the methodology described above. Therefore, it is not yet possible to determine the exact emission allowance.

Based on contributions from individual entities, with the measures proposed in this plan, Belgium achieves an emission reduction for the ESR sectors of 42.6 % in 2030 compared to 2005. This represents a deficit of 4 million tonnes of CO₂-eq in 2030 compared to the reduction target that applies to Belgium in accordance with the Effort Sharing Regulation, i.e. around 8 % of the emission margin allocated to Belgium for 2030.

From 2023 onwards, emissions under the WAM scenario exceed Belgium's annual emission allocation, but in 2023 this can probably be offset by the surpluses accumulated in 2021 and 2022. However, a cumulative deficit appears from 2024 onwards. For the whole period 2021-2030, the cumulative deficit based on WAM projections is estimated at 13,7 million tonnes of CO₂-eq. This deficit corresponds to 32 % of Belgium's emission allocation for 2030, or approximately 2 % of the estimated emission allocation for the period 2021-2030.

Belgium commits to reduce Belgium's emission allowance deficit by taking necessary measures and to compensate it with the use of flexibility, through additional agreements during the burden-sharing negotiations.

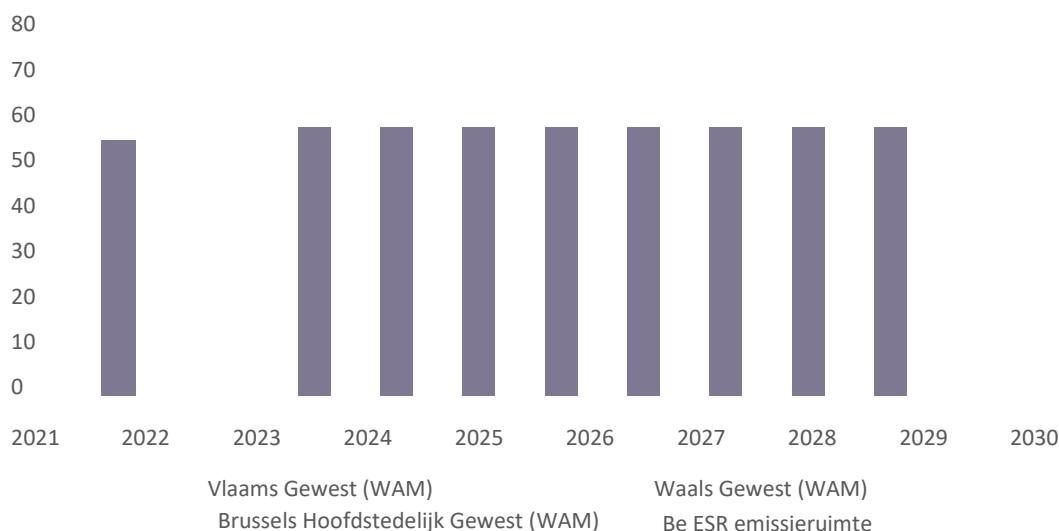


Figure 5: Compilation of regional and federal projections for 2021-2030 (ESA emissions WAM)

Source: Compilation of regional and federal projections for 2021-2030 (ESR emissions WAM96); 2021-2022 and 2030 in accordance with Executive Order (EU) 2020/212697, 2023-2025 (own calculation) and 2026-2029 (own calculation, preliminary estimate) in accordance with Regulation (EU) 2023/857 (98ESR emissions room).

According to the Effort Sharing Regulation, Member States may use various flexibility mechanisms if they do not themselves have a sufficient number of

962021 on the basis of the report of the inventory of 15/03/2023 and 2022 on the basis of the provisional report of 31/07/2023.

97<https://eur-lex.europa.eu/legal-content/NL/TXT/PDF/?uri=CELEX:32020D2126>

98<https://eur-lex.europa.eu/legal-content/NL/TXT/PDF/?uri=CELEX:32023R0857>

emission allowances. Compared to the 2013-2020 period, some forms of flexibility were retained (savings, borrowing and emissions trading), some mechanisms have been removed (purchase of allowances from CDM and JI projects) and new mechanisms have been introduced (ETS flexibility and LULUCF flexibility). The ESA limits quantitatively the use of various flexible instruments.

Belgium has already notified that it would use 1.89 % of the ETS-ESR flexibility.

Reductions in ESR sectors under the scenario with additional measures (WAM) (in Mt CO₂ eq, last column as a percentage)

	2005 (recalculated)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2030 vs. 2005
Be ESR Objective⁹⁹	81,6	71,1	69,1	65,9	62,7	59,4	59,0	55,1	51,1	47,2	43,3	— 47.0 %
BE WAM	81,6	69,5	66,8	67,4	65,4	62,7	59,2	56,3	53,3	50,3	46,8	— 42.6 %
VG WAM	50,4	43,7	44,2	43,3	42,2	40,5	38,1	36,3	34,5	32,5	30,2	— 40.0 %
WG WAM	26,7	22,4	21,6	20,8	20,0	19,2	18,2	17,2	16,2	15,2	14,3	— 46.5 %
BHG WAM	4,5	3,5	3,3	3,3	3,2	3,0	2,9	2,8	2,6	2,5	2,3	— 48.7 %

Table 20: Reductions in the ESR sectors under the scenario with additional measures (WAM) Source: Belgian FIU report (15/03/2023) for 2021; compilation of regional and federal projections for 2022-2030.

Estimate of the ESA emission space of Belgium (in Mt CO₂ eq)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Be ESR Objective¹⁰⁰	71,1	69,1	65,9	62,7	59,4	59,0	55,1	51,1	47,2	43,3
BE WAM	69,5	66,8	67,4	65,4	62,7	59,2	56,3	53,3	50,3	46,8
Annual report	1,6	2,4	— 1,5	— 2,7	— 3,3	— 0,2	— 1,2	— 2,2	— 3,1	— 3,5
Cumulative balance sheet	1,6	4,0	2,5	— 0,2	— 3,5	— 3,7	— 4,9	— 7,1	— 10,2	— 13,7

Table 21: Reductions in ESA sectors under the scenario with additional measures (WAM) Source: Belgian FIU report (15/03/2023) for 2021; compilation of regional and federal projections for 2022-2030.

In order to achieve the minimum share of renewable energy in the transport sector, as provided for in the Renewable Energy Directive, the Act on Product Standards for the Integration of Energy from Renewable Sources into fossil transport fuels of 31 July 2023 was adopted at federal level. This law requires suppliers of liquid and gaseous fuels to provide a minimum proportion of renewable fuels (category A biofuels, category B biofuels, category C biofuels, recycled carbon fuels, RFNBO and/or renewable electricity) on an annual basis compared to the total amount of fuels placed on the market. For this purpose, they may register the

⁹⁹For 2026-2029, this is an estimate

¹⁰⁰For 2026-2029, this is an estimate

quantities of renewable fuels placed on the market in a publicly managed registry, after which they will be allocated energy units equivalent to the quantities of renewable fuels registered. They must return these energy units to prove and ensure compliance with the product standard for the share of renewable energy in transport fuels. Operators of electricity supply infrastructure for the road and rail transport sector can also contribute through this register, but are exempted from the obligations.

The share of renewable energy to be included in transport fuels to meet the product standard is gradually increasing to 13.9 % by 2030 (including multipliers for certain types of renewable fuels). The scheme allows fuel suppliers to choose the renewable fuels they will use to meet these obligations. Therefore, the volumes used by each of these fuels cannot be predicted today. However, the 2019 NECP assumed that this target would be fully achieved by biofuels.

In the absence of alternative references, some regions assumed in their projections that market participants would nevertheless follow the biofuel blending pathway as included in the 2019 NECP.

The Federal Government has undertaken to report annually on any difference between the percentage of blending included in the 2019 NECP and the percentage of blend achieved.

If the above-mentioned monitoring shows that the alternative measures already taken by the federal government are insufficient to achieve the same emission reduction and contribution to the renewable energy target, the federal government will take further action.

Federal State

With the decision of the Council of Ministers on 8 October 2021, it undertook to:

- Implement as soon as possible all policies and measures included in the federal contribution to the current NECP. The implementation of these measures aims to achieve cumulative emission reductions of 208 million tonnes eq over the period 2021-2030. —CO₂ (of which 118 million tonnes in the non-ETS sector and 90 million tonnes in the ETS sector). If some of the measures included in the existing NECP are removed, they will be replaced by other measures or by the reinforcement of some with at least equivalent emission reduction potential in order to ensure the same overall volume of emission reductions.
- Develop and implement new or strengthened policies and measures, aiming at an additional emission reduction target in the non-ETS sector (ESR) of at least 25 million tonnes eq. —CO₂ in the period 2022-2030. These new or strengthened policies and measures will concern, in particular, the greening of taxation (including the reform of the corporate car tax system), bonus-climat (linked to European decision-making), transport (including the scheme to be developed for carbon-neutral fuels), buildings, and product standards. They will be subject to rigorous impact assessment and annual monitoring, in accordance with methodologies developed with the assistance of the Federal Planning Bureau and validated by a panel of independent experts. See below under 3.1.1.i.8.
- Put in place enabling policies and measures, helping to create a framework conducive to the deployment of the full potential of the emission reduction policies and measures put in place at federal and regional level. These include the reinforcement of the electricity transmission network, the establishment of a framework for the development of hydrogen in the energy transition, the establishment of a sustainable finance strategy, the Investment Fund for the green transition and initiatives on the circular economy and market access of products. See also point 3.1.1.

Flemish Region

In this plan, Flanders' annual emission allocation for the years 2021-2022 is based on the initial -35 % ESR reduction target for Flanders. For the years 2023-2030, the Flemish -40 % ESR reduction target was taken into account.

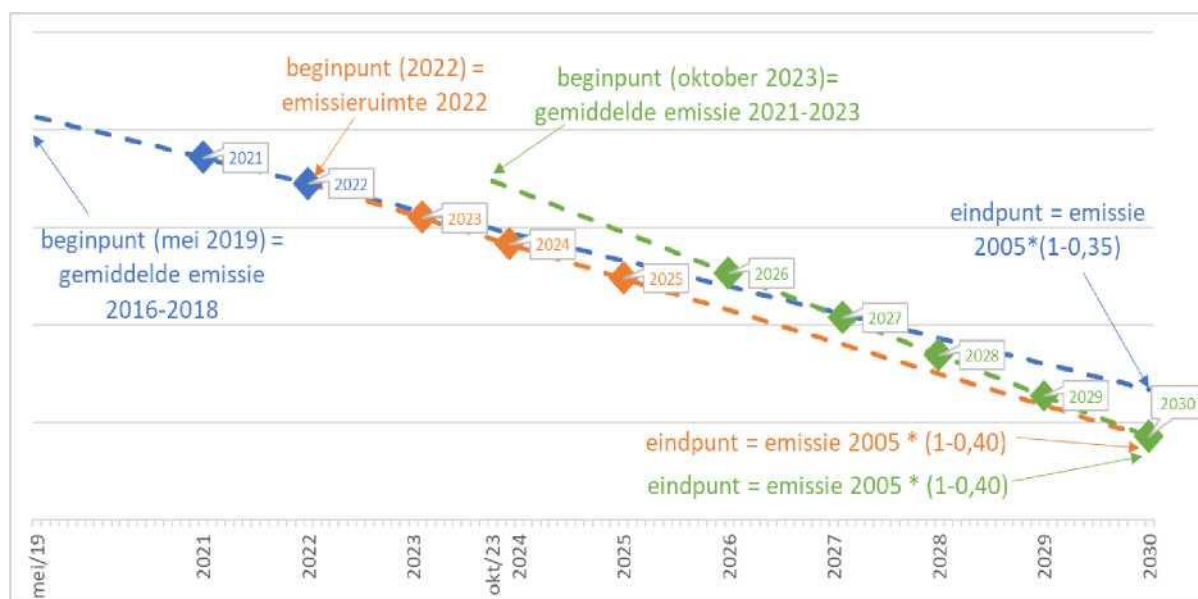


Figure 6: European Emissions Allowance Methodology for ESR emissions applied to Flanders

When determining the end point of the trajectory, European calculation methods shall be taken into account¹⁰¹. For this purpose, the emissions covered by the ESR for the year 2005 shall be recalculated on the basis of the ESR target in the year 2020.

This recalculated figure of ESR emissions is 50,4 Mtonnes CO₂ equivalent. That emission allocation for emissions covered by the recalculated ESR is higher than the actual 2005 emission allocation for the sectors covered by the ESR, based on the scope 2013-2020. This actual emission allowance amounts to 48,5 Mtonnes CO₂ equivalent¹⁰². This difference between the two allowances can be explained by how the adjustments to the scope of the EU ETS (in the transition from 2008-2012 to 2013-2020) were incorporated by the European Commission in the definition of the ESR trajectory for 2013-2020.

The 40 % reduction target based on 2005 emissions covered by the 'recalculated' ESR (which are higher than the actual 2005 emissions covered by the ESR) corresponds to a 37.6 % reduction target by 2030 compared to the actual 2005 emissions covered by the ESR¹⁰³. In this plan, the reductions achieved in a given sector will always be presented in relation to the actual emissions in 2005, as the recalculated 2005 allocation cannot be distributed across sectors. When referring to the total emissions covered by the ESR in 2005 or the reductions compared to emissions covered by the total ESR in 2005, this plan will always explicitly indicate whether they are recalculated or actual 2005 emissions.

The exact emission allowance can only be finally determined at a later stage. It should be noted that there are still a number of uncertainties regarding the emission allocation included in this plan:

- The Belgian allocation of emissions covered by the ESR still needs to be distributed among the different entities as part of the intra-corporate burden sharing for the period 2021-2030.
- Emissions for the years 2021-2023, necessary to determine the partial trajectory for the years 2026-2030, will not be available until 2025. For 2021, the draft inventory as communicated to the European Commission on 15/01/2023 was provisionally taken into account and for the years 2022-2023 the

¹⁰¹ See the methodology described on page 16 of the EEA report. Technical background document Accompanying the report Trends and projections in Europe 2022, <https://www.eea.europa.eu/publications/trends-and-projections-in-europe-2022/technical-background-document-to-the-view>
Based on¹⁰² the inventory submitted to the European Commission on 15 March 2022.
Based on¹⁰³ the inventory submitted to the European Commission on 15 March 2022.

projections of the WAM scenario have been taken into account as an indication. As of the compliance year 2021, unlike the current period 2013-2020, there will no longer be an annual count of emissions. The compliance cycle is described in the Governance Regulation.

The ESR provides that Member States continue to report annually on their emissions even for the following period 2021-2030. The Commission will continue to verify, on the basis of an initial check, the accuracy of the reported emissions on an annual basis. The in-depth assessment of Member States' emission inventories is carried out only twice during the period: once in 2027 (for the years 2021-2025) and once in 2032 (for the years 2026-2030). Following this in-depth review, the Commission will formally determine the ESR emissions per Member State for each year of the five-year period and the count may start. This means that Member States submit compliance units on an annual basis to cover their ESR emissions. They may make use, within a short period of time, of the various forms of flexibility they have at their disposal under the ESR and LULUCF Regulations. The compliance of each Member State is then formally established. Any deficits found in a given year shall be multiplied by a compliance factor 1,08 and added to the emissions of the following year.

ESR sectoral objectives

In 2019, the Flemish Government drew up a Energy and Climate Plan for Flanders 2021-2030, the ambition of which is to reduce greenhouse gas emissions covered by the ESR by 35 % in 2030 compared to 2005 (recalculated). In addition to what is already foreseen in this plan, the Flemish Government decided in 2021 on a package of additional measures in its Visienota betreffende bijkomende maatregelen Klimaat (vision note on additional climate measures)¹⁰⁴, bringing this ambition to a reduction of -40 % by 2030 compared to 2005 (recalculated).

On the basis of the additional efforts decided for each sector by the Flemish Government in 2021, this updated plan sets sectoral objectives for the various sectors concerned by the ESR: transport, buildings, agriculture, ESR industry and waste:

- For the agricultural and industrial sectors covered by the ESR, sectoral targets were set in 2021, including a 10 % reduction in GHG emissions by 2030 compared to the 2019 VEKP WAM scenario;
- For the transport, buildings and waste sectors, the additional efforts set in 2021 in this plan have been translated into an adapted projection scenario with a sectoral target (OBJECTIVE scenario). For these sectors, the sectoral objectives are equal to this OBJECTIVE scenario.

Monitoring of these sectoral objectives will be included in the annual progress report on the VEKP (see Part I). Where appropriate, the relevant ministers shall take the necessary initiatives within their own competences to close the gap between sectoral emissions and sectoral targets.

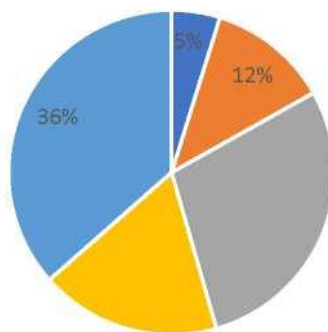
Overview of ESR emissions and projections 2005-2030

As regards sectoral distribution, this plan uses the inventory categories used in European and international reporting formats, namely the so-called FIUs¹⁰⁵. In the following chapters of this plan, the main categories of sectors covered by the ESR (transport, buildings, agriculture, industry and waste) are subdivided into a number of sub-categories.

In 2021, the transport (36 %) and buildings (29 %) sectors had the highest contribution to the total GHG emissions covered by the ESR in Flanders (Figure 22). The agriculture and industry sectors covered by the ESR account for a lower share of emissions covered by the ESR, with 18 % and 12 % respectively. The waste sector

¹⁰⁴https://assets.vlaanderen.be/image/upload/v1659456490/Visienota_bijkomende_maatregelen_aaxnal.pdf

¹⁰⁵ <https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-parts/reporting-requirements>



accounts for the lowest share of 5 %.

Figure 7: Sectoral shares in Flemish greenhouse gases covered by the ESR in 2021

Figure 23 provides an overview of the greenhouse gas emissions covered by the ESR, by sector, over the period 2005-2030 based on the 2005-2020 inventory, projections and sectoral targets up to 2030. The sectoral objectives of the OBJECTIVE scenario are aligned with the Visienota betreffende bijkomende maatregelen klimaat (see section 2.1.2). As regards projections, the “with additional measures” (WAM) scenario is

29

presented. This WAM scenario is based on the additional policy measures that are explained below in this plan.

18

Greenhouse gas emissions covered by the ESR in Flanders decreased by 13 % from 50.4 Mt CO₂ equivalent in 2005 (recalculated ESR emissions) to 43.7 Mt CO₂ equivalent in 2021.

Afval ■ ESR-industry ■ Gebouwen ■ Landbouw ■ Transport

Taking into account the measures planned in this plan, the projections of the WAM scenario indicate that emissions covered by the ESR will decrease by 40.0 % by 2030 compared to the recalculated ESR emissions for the year 2005 (corresponding to a decrease of 37.6 % compared to the actual 2005 figures). This fully achieves the OBJECTIVE scenario in 2030. The plan approved in December 2019 included projections for the WAM scenario leading to a 32.6 % reduction in ESR emissions in Flanders in 2030 compared to 2005 (recalculated emissions).

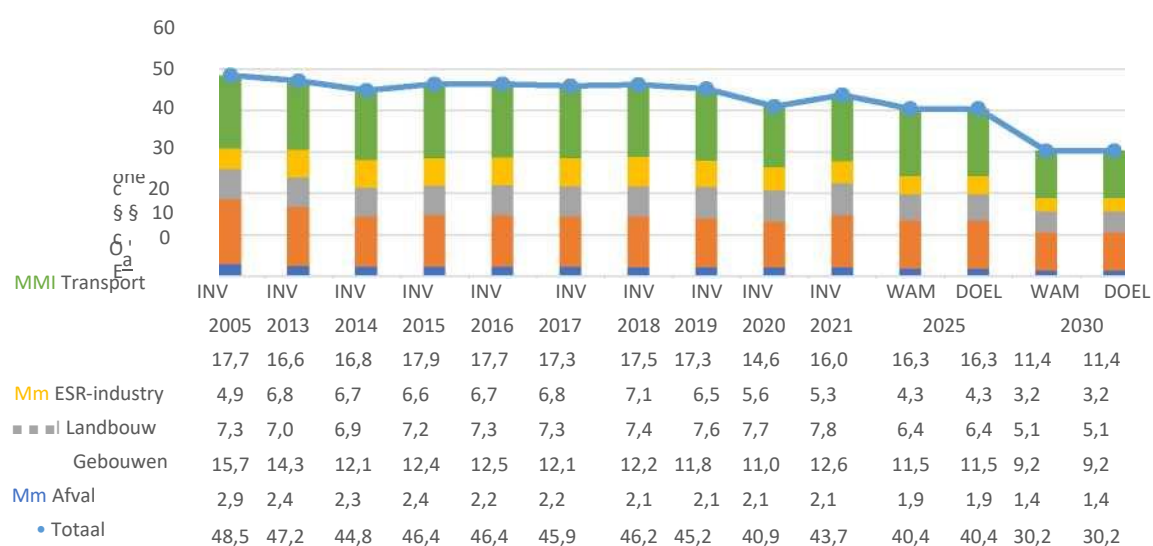


Figure 8 Greenhouse gas emissions covered by the ESR in Flanders 2005-2030 (Mt CO₂ equivalent)

In the period 2005-2021, the largest reductions were observed in the buildings sector (-20 %) and the waste sector (-27 %). For the coming years, the WAM scenario foresees a further reduction in the buildings sector of -42 % in 2030 compared to 2005. Between 2005 and 2021, there was an increase in the agricultural sector (+ 8 %). In the WAM scenario, a 29 % reduction in the agricultural sector is expected in 2030 compared to 2005. There was a decrease in the transport sector over the period 2005-2021. On the basis of the policy intentions already planned in the WAM scenario, it is expected that the trend in the transport sector will continue to fall by 35 % in 2030 compared to 2005. In the industry sector covered by the ESR, there is a further 8 % increase in emissions between 2005 and 2021. Here, the WAM scenario is expected to reverse the trend to a 35 % decrease by 2030 compared to 2005.

Assessment of the objective of the ESR 2021-2030

Figure 2-4 compares the projection scenarios¹⁰⁶ with the allowances covered by the ESR (estimated on the current basis) for the period 2021-2030 (see also Chapter 2.1.1).

In the WAM scenario, small deficits are expected on an annual basis over the period 2022-2025. Cumulated over the period 2021-2030, this represents a deficit of 3.5 Mt CO₂ equivalent.

¹⁰⁶For 2021, the greenhouse gas inventory as submitted to the European Commission on 15/03/2023 was used.

Based on the WAM scenario for 2021-2030, the estimated cost of purchasing flexibility can be estimated approximately between EUR 0,2 billion and EUR 0,3 billion, taking into account an estimated unit price of allowances between EUR 70 and EUR 100¹⁰⁷.

However, when interpreting the results on the basis of the WAM scenario, several uncertainties inherent in the development of projections should be taken into account. Reference is made to exogenous assumptions in the various sectors (e.g. economic growth, fuel prices, demographic trends, degree days, etc.) and a series of policy assumptions.



Figure 9 Evaluation of the objective of the ESR 2021-2030

Application of flexibility mechanisms

The ESR Regulation provides for several forms of flexibility that Member States can use to meet their targets in the 2021-2030 period in the event that they themselves have insufficient emission allowances. Compared to the 2013-2020 period, some forms of flexibility were retained (savings, borrowing and emissions trading), some mechanisms have been removed (purchase of allowances from JI and CDM projects) and new mechanisms have been introduced (ETS flexibility and LULUCF flexibility). The ESR Regulation limits quantitatively the use of several flexible instruments. The distribution between the regions of access to these forms of flexibility is part of the burden-sharing exercise within the 2030 climate targets. As regards the flexibility of the ETS, it has already been agreed that Flanders would have access to around 9,6 million tonnes over the period 2021-2030.

Region Walloon

The 2019 Regional Policy Declaration (RPD) set a Walloon target of reducing greenhouse gas (GHG) emissions by 55 % by 1990 compared to 2030, covering all greenhouse gas emissions included in the emission inventory, i.e. the ETS and ESR sectors, compared to 1990.

In 2005, total Walloon emissions amounted to 49 Mt CO₂-eq, divided into 22 MtCO₂-eq for ETS and

¹⁰⁷VEKP 2019 foresaw a cost of EUR 30-50 per tonne. Given the link with the ETS (due to ETS flexibility), the cost has been updated taking into account the recent evolution of ETS prices.

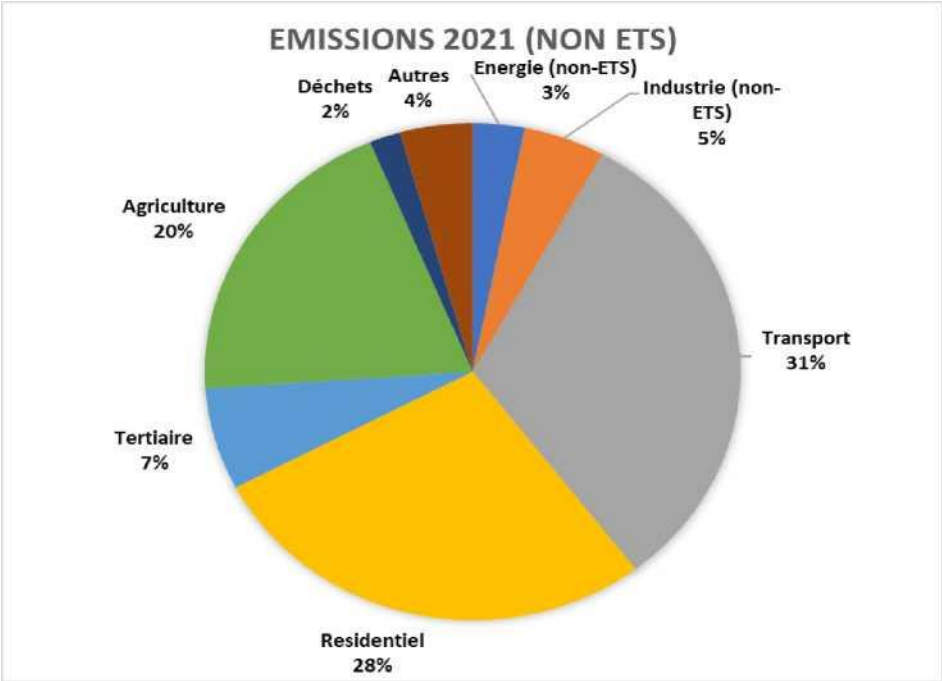
27 Mt CO₂-eq for ESR108.

A reduction of -55 % compared to 1990 as defined in the DPR corresponds to achieving in 2030 the total Walloon emissions of 25 Mt CO – eq.

The implementation of a **reduction of 47 % compared to 2005 for non-ETS sectors, together with the** expected reductions in HTA, will make it possible to meet the overall reduction target of 55 % compared to 1990 adopted in the PRD. As mentioned above, this also corresponds to the objective attributed to Belgium in the context of intra-European burden-sharing. Apart from the fact that Wallonia’s ambitions are known to all and are recognised, the decision to attribute the Belgian objective to us does not prejudice the burden sharing within the Community. Previously, the Walloon and Flemish regions had already taken up this objective in the 2020 burden sharing.

Consequently, the Plan aims to meet the ESR target of -47 % compared to 2005 and does not include any reduction measures specifically targeted at the HTA sectors. However, some accompanying measures will be provided for the ETS sectors in the context of energy efficiency or the reduction of air pollutants. The ESR target of -47 % is subject to a sectoral breakdown.

GHG targets and trajectories for non-ETS sectors



Picture 1 _ Breakdown of GHG omissionsin M ^ dZ/nn/e for ISS sectors not ~ E7 ^ in 2021. AwAC source
Figure 10 :

Distribution of greenhouse gas emissions in Wallonia for non-ETS sectors in 2021. AwAC source

Considering only the Walloon ESR emissions, the distribution of GHG emissions for the different sectors concerned is as follows:

Distribution of ESR GHG emissions by sector (AWAC Inventory, 2021)	Reduction from observed emissions	Trend from reduction to 2030

The ETS and ESR108 emissions of the base year 2005 are estimated taking into account trajectory corrections, linked to ETS scope changes between 2005 and today: some non-ETS companies were integrated into the ETS after 2005, which reduces ESR emissions and increases ETS emissions. The calculation of the ESR trajectories takes account of these changes, by means of complex corrections which are included here in a simplified version, recalculating a 2005 ‘theoretical’ year for ETS and ESR.

Sector	In%	In kt CO2-equivalent	Path between 2005 and 2021	Trend "Business Usual" ACE
Transport	31 %	7 054	— 12 %	— 8 %
Residential	28 %	6 192	— 13 %	— 16 %
Agriculture	20 %	4 432	— 13 %	— 20 %
Tertiary	7 %	1 484	— 9 %	— 9 %
Other	4 %	979	7 %	— 30 %
Industry (no — HTA)	5 %	1 105	— 66 %	— 73 %
Energy (non-ETS)	3 %	699	66 %	43 %
Waste	2 %	420	— 61 %	— 73 %
Total109	100 %	22 365	— 16 %	— 19 %

Table 22: Changes in ESR sectoral GHG reductions since 2005 and business as usual at 2030 (source: AWAC)

The sum of the projected effects of the new **policies and measures presented in Chapter 3 would reduce ESR emissions by around 47 % compared to 2005** (compared to a reduction of 19 % at unchanged policy) and is based on efforts in each of the sectors concerned.

The decarbonisation targets validated in the PACE for the ESR sectors remain Wallonia's 2030 targets compared to 2005.

- Transportation: — 43 %
- Residential —52 %
- Agriculture —27 %
- Tertiary: —63 %
- Other GHGs —43 %
- Non-ETS industry: —80 %
- Non-ETS energy: — 50 %
- Waste: —70 %

It should be noted that the Walloon objectives of decarbonisation, renewable energy production and energy efficiency are those validated in PACE.

However, since the adoption of the PACE, statistical and methodological changes have occurred, varying the projections and some historical series in the figures presented in this plan.

On the one hand, the economic optimisation model "TIMES Wallonie"¹¹⁰ was used to quantify the objectives of the energy-related sectors. This model takes into account the specificities of Wallonia and finely modulates all the energy sectors (residential, tertiary, industry, transport, electricity production, etc.) and their interactions. The model allows the construction of integrated energy and climate scenarios. Emissions of non-energy origin have been modelled through specific tools.

On the other hand, statistical changes vary in the projections:

- Energy targets are now counted according to the new methodology (consistent with the European methodology) for accounting for heat from cogeneration in the energy balance.

¹¹⁰ The overall109 target 2030 expressed as a percentage takes into account the correction due to changes in the ETS perimeter that have occurred since 2005.

- The methodology for accounting for greenhouse gases in transport has also recently been adapted. Previously, the Walloon share of the ‘surplus of road transport’¹¹¹ was allocated in proportion to the Walloon share of these emissions in the fuel used modelling (based on the vehicle fleet and mileage travelled in Wallonia). From submission 2023 onwards, the inventories will be based on regionalised fuel sales (which has a downward impact on the sector’s emissions in Wallonia).

All these technical changes are by their nature evolutionary and indicative; they may vary upwards or downwards, in the light of changes in the methodological and statistical tools used in Wallonia, and in conjunction with the other levels of government. These projections remain imperfect as they can also not take into account precisely the future effects of the PACE measures for which the modalities or scope of implementation still need to be determined (e.g.: evolution of renewable financing, fossil gas exit strategy and network developments, improved tools for measuring the impacts of agricultural emissions, development of new legal frameworks, etc.). In addition, the projections will continue to evolve regularly in line with the emergence of new European provisions (i.e., the evolution of the ETS system, implementation of Fit For 55, etc.) or cyclical events by 2030.

Despite these regular technical and methodological changes in the projections, the objectives described in Chapter 2 of the PACE are the Walloon Government’s commitment to climate and energy by 2030. They will be used in particular in the national negotiations on burdensharing.

¹¹⁰ The model provides an ‘ideal’ representation of the technological choices that should be made in a perfect world (i.e. with full knowledge of the costs and characteristics of the different technologies over the modelled period (i.e. 2050, with intermediate milestones, in particular by 2030), so as to make choices that minimise the overall cost. In order to take into account the policies put in place, as well as the behaviour of end-users and the potential bottlenecks that this creates for investment, constraints are added to the model.

¹¹¹ I.e. the difference between the emissions modelled at Belgian level and the emissions calculated on the basis of fuel sales in Belgium (IPCC rules for the calculation of inventories)

Brussels Capital Region

The Brussels Government is pursuing the PACE objective of reducing direct regional emissions by at least 47 % by 2030 compared to 2005. This objective has not been broken down into sectoral objectives.

LULUCF target (LULUCF)

Land use, land use change and forestry (LULUCF) is a greenhouse gas emissions inventory sector that includes emissions (emissions) and sequestration of greenhouse gases from activities related to land use, land use change and forestry.

The revised LULUCF Regulation (EU) No 839/2023 sets the annual net emissions or net surplus for two sub-periods, 2021-2025 and 2026-2030. Member States with a surplus receive credits for this purpose and can sell them to Member States with a deficit. These appropriations can also be used – to some extent – to achieve the objective of the Effort Sharing Regulation (ESR). Conversely, any deficit should be filled by purchasing LULUCF credits from Member States (or regions) that are surplus or using – without limitation – their own allowances from the ESA sectors.

The target applicable to all EU Member States for the period 2021-2025 is the so-called “no-debit rule”. This means that for each Member State, the sum of all LULUCF activities (reforestation, deforestation, forest management, cropland and grassland management, harvested timber products, each calculated according to specific regulations) should not be a net source of greenhouse gases over the whole period 2021-2025, taking into account historical reference levels (accounting rules) and foreseen flexibility. This does not mean that no category of activity should cause additional emissions, but rather that carbon stocks as a whole should not decrease. Indeed, credits (carbon storage) from one activity category can be used to compensate for a deficit (carbon emission) in another activity category. With the revision of the LULUCF Regulation, the no-debit rule will disappear from 2026 and the accounting rules will be simplified. To calculate the LULUCF Regulation, net emissions/storage will be used for the period 2026-2030, i.e. the sum of all LULUCF categories, as available in the inventory. The new target for 2030 is expressed as additional storage to be achieved compared to the average storage of 2016-2018. For Belgium, it was set at -320 kt CO₂-eq of additional storage by 2030, in addition to the average storage (negative emissions) in the period 2016-2018.

Based on the 2020 inventory included in the LUCF Regulation, the average storage in the period 2016-2018 for Belgium was 1 032 ktco₂-eq. However, in Inventory 2023 the figures for 2016-2018 have been corrected (see table below), so that the average for 2016-2018 according to the latest inventory is 674 ktco₂-eq. Belgium’s target 2030 according to the latest inventory is therefore 674 + 320 = 994 kt CO₂-eq of storage.

Evolution of emissions/storage in the LUCF sector (WAM scenario) MtCO ₂ -eq. ²										
2005	2010	2015	2016	2017	2018	2019	2020	2021	2025	2030
- 1,8	- 0,4	- 0,9	- 0,8	- 0,6	- 0,6	- 0,5	- 0,3	- 0,3	- 0,9	- 1,3

Table 22: Evolution of emissions/storage in the LUCF sector

Source: Belgian FIU report (15/03/2023) for 2005-2021; compilation of regional and federal projections for 2025-2030.

Federal State

The Federal Government will support regional policy aimed at achieving this objective (certification, standardisation of products, biomass/ILUC scaling up criteria, federal circular economy action plan, etc.).

Flemish Region

Flanders has set the objective to meet the requirements of the new Regulation in a Belgian context, i.e. the no-debit rule for the period 2021-2025, and to contribute to the additional storage of 320 kt CO₂-eq by 2030.

Region Walloon

Given the high level of uncertainty about the evolution by 2025, both in forest management and land use, **Wallonia assumes simple compliance with the “no-debit” rule for 2021-2025.**

For the period 2026-2030, given the ambition of the target, which still needs to be burdened within it, it is possible that Wallonia will have to use the flexibility mechanisms (use of AEA from ESR or purchase of credits) to ensure compliance in 2026-2030.

The balance at Walloon level will depend heavily on changes in land use (impacts of land use changes), forest management (intensity of cuts in particular), but also on updates to the inventory. This trajectory is therefore difficult to predict at this stage.

Brussels Capital Region

There are no measures in this sector as the Brussels-Capital Region is an urban region.

*II. Where appropriate, other national objectives and targets consistent with the Paris Agreement and consistent with existing low-emission strategies.
Where applicable, for the contribution to the overall Union commitment to reduce greenhouse gas emissions, other objectives and targets, including sectoral and adaptation objectives.*

Emissions of methane

Methane is one of the most powerful greenhouse gases. About half of anthropogenic methane comes from agriculture and one fifth from the energy sector (CH₄). Emissions from the energy sector account for $\pm 1\%$ of total Belgian emissions in 2021 (CO₂-eq.)¹¹⁰.

Belgium therefore joined the Global Methane Pledge¹¹¹ at COP26 in Glasgow in November 2021. In this document, the signatories agree to take voluntary measures to contribute to a collective effort to reduce global methane emissions by at least 30 % below 2020 levels by 2030, which could eliminate warming of more than 0.2 °C by 2050. This is a global and not a national reduction target. Participants also commit to moving towards the use of the highest IPCC inventory methodologies, and to continuously work to improve the accuracy, transparency, coherence, comparability and completeness of national greenhouse gas inventory reports under the UNFCCC and the Paris Agreement, and to ensure greater transparency in key sectors. Belgium did not prepare a national methane reduction action plan before COP27. However, the various Belgian entities committed, by decision of CNC-CONCER, to pay particular attention to methane reductions in the updated versions of the entities' specific contribution to the National Energy-Climate Plan. On this basis, a national methane reduction action plan could possibly be developed.

Belgium, which has no upstream fossil oil and gas industry, has not yet set methane emission reduction targets in the energy sector. However, we will designate a competent authority when the EU Regulation on methane emissions in the energy sector enters into force. Strict measures are already in place in the gas transmission and distribution segments for obvious safety reasons. Further measures will be taken in line with future regulations.

According to the WAM scenario, Belgian methane emissions will be 5,7_{MtCO₂-eq} in 2030, a reduction of 27.9 % compared to 2020. This is largely due to the evolution of landfill emissions but also to additional reductions in the WAM scenario in the agricultural sector.

Evolution of methane emissions (in Mt CO₂ eq, last column in

110	Inventory	national	from	gas	to	effect	from	protected crops,	March
	2023.								

https://cdr.eionet.europa.eu/be/eu/mmr/art07_inventory/ghg_inventory

111 Global Methane Pledge, Climate and Clean Air Coalition, 2021. <https://www.ccacoalition.org/en/resources/global-methane-pledge>

percentage excluding LUCF)

	2020	2025	2030	2030 vs. 2020
BE WAM	7,9	7,0	5,7	— 27.9 %
VG WAM	5,1	4,4	3,4	— 33.2 %
WG WAM	2,8	2,6	2,3	— 17.3 %
BHG WAM	0,042	0,042	0,040	— 6.4 %

Table 23: Evolution of methane emissions

Source: Belgian FIU report (15/03/2023) for 2020; compilation of regional and federal projections for 2025-2030.

Flemish Region

Based on methane projections in the WAM scenario, a reduction of 32 % is expected at Flemish level in 2030 compared to 2020 (Figure 2-5).

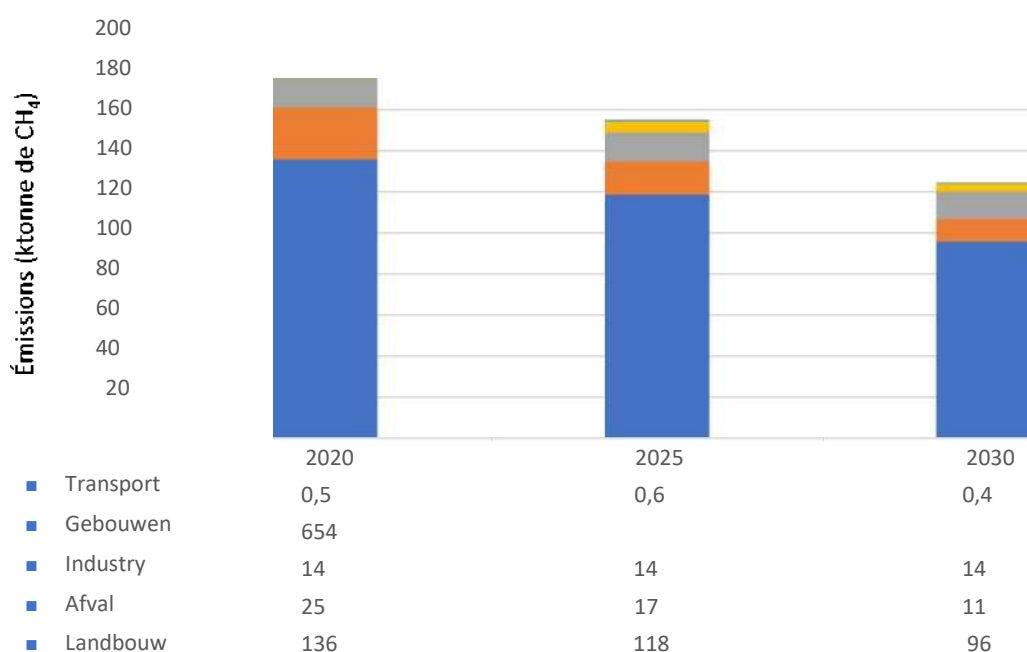


Figure 23: Methane projections in WAM 2020-2030

Region Walloon

As part of the methane emissions policy, the emitting sectors are mainly agriculture; waste and waste water.

The latter two sectors have already implemented measures that drastically reduce their methane emissions. It is difficult to set an additional target.

As for the agriculture sector, methane emission reduction targets are in line with the targets for energy efficiency and renewable energy production (from biomass, through biomethanisation, etc.). There is therefore no specific objective.

Brussels Capital Region

Methane emissions are marginal in BCR. No specific objectives have been adopted. Methane shall be integrated into the overall objective of reducing direct regional emissions.

Objectives of the Emissions Trading System

The Member States' climate target refers only to the reduction of greenhouse gas emissions in sectors not covered by the existing Emissions Trading System (ETS). Belgium has no specific emission reduction target for the ETS sector.

Energy-intensive industry, electricity and aviation are covered by the EU Emissions Trading Scheme. They must surrender an emission allowance for each tonne of CO₂ emitted and thus have an incentive to deploy CO₂-efficient production techniques. As the quantity of emission allowances is limited at European level, overall European CO₂ emissions are still below the predefined "cap". As part of the Fit for 55 package, this cap will be lowered to achieve a 62 % reduction in emissions in 2030 compared to 2005, allowing the EU ETS sector to make a significant effort to reduce greenhouse gas emissions. Between 2021 and 2030, maritime transport will also gradually come within the scope of the EU ETS.

Emissions from the EU ETS will be 45 % lower in 2030 compared to 2005 under the WAM scenario. The most pronounced reductions concern emissions from industrial processes, which are reduced by 58 % compared to 2005 (see Section B).

Evolution of greenhouse gas emissions in the ETS sector (according to WAM scenario, ETS perimeter 2013-2020)

	<i>MtCO₂-eq.</i>							
	2005	2010	2015	2019	2020	2021	2025	2030
BE	66,5	54,8	44,7	44,6	41,5	41,4	43,1	36,5

Table 24: Evolution of greenhouse gas emissions in the ETS sector

Source: Belgian FIU report (15/03/2023) for 2005-2021; compilation of regional and federal projections for 2025-2030.

Federal State

By the decision of the Federal Government of 8 October 2021, the Federal State will contribute to reducing emissions from the ETS sector in the period 2021-2030, by reinforcing existing measures or by implementing new measures, in particular through:

- Strengthening Offshore capacity in the North Sea: the government commits to install additional renewable energy capacity in the North Sea to at least 4 GW by 2030, with an additional emission reduction of 12.5 million tonnes eq. —CO₂ over the period 2021-2030.
- The abolition of fossil fuel subsidies such as kerosene, taking into account the European context and ongoing discussions on various European dossiers.

Flemish Region

The climate target for Member States concerns the reduction of greenhouse gas emissions from sectors not covered by the Emissions Trading System (EU ETS).

In Flanders, around 200 installations in energy-intensive industry and the electricity sector are covered by the EU ETS. They are required to surrender an emission fee for each tonne of CO₂ emitted and are therefore encouraged to invest in CO₂-efficient production techniques.

Region Walloon

The assumption considered for the ETS sector is that the Walloon target is equal to the European target. This assumption is simplistic but pragmatic. Given that Europe will determine the free allocations and each company is free to buy by auction the quantity of allowances it deems necessary, it is not possible to determine what will be the actual reduction that will be observed in 2030 at the level of Wallonia alone. Moreover, given the strong European ambition in HTA, it is not envisaged to set more stringent binding targets for companies than the HTA provides.

Brussels Capital Region

There are very few HTA installations in the BCR due to the urban nature of the Region. No additional objectives to the European target have been defined, nor are there any sector-specific measures.

Adaptation objectives

Decision of the National Climate Commission of 28 June 2021 to mandate the Working Group on Adaptation to propose a new National Adaptation Plan. The work is ongoing and its results can be taken into account in the preparation of the final version of the National Adaptation Plan. Due to the priority given to regional and federal adaptation plans, the new National Adaptation Plan will be developed in collaboration with the regions, with strong measures in the different sectors concerned. This national plan will be developed taking into account the focal points specified in the European Adaptation Strategy (2021): focus on nature-based solutions, information gathering (smarter adaptation), closing climate protection gaps (insurance), etc.

The European Adaptation Strategy provides for frequent updates of national adaptation strategies and plans. Therefore, the national adaptation strategy needs to be assessed. It also calls for a robust monitoring and evaluation framework. The European Commission therefore undertakes to:

- Improve monitoring, reporting and assessment of alignment using a harmonised framework of standards and indicators;
- Provide tools for ex-ante evaluation of projects in order to better identify co-benefits and positive impacts on the economy of adaptation and prevention projects.

Federal State

Objectives:

- Maximising societal resilience and resilience to climate change; Federal Adaptation Measures 2023-2026 – Towards a climate-resilient society by 2050¹¹²

Following the decision of 2 April 2021 on monitoring the implementation of federal climate policy

¹¹²Towards a climate-resilient society by 2050, Federal Adaptation Measures 2023-2026, Climate Change Service, March 2023.
<https://climat.be/actualites/2023/mesures-federales-d-adaptation>

policies and measures (2021-2030), the Federal Government undertook to develop as soon as possible a coherent set of climate adaptation and resilience measures. This roadmap was noted by the Council of Ministers in its decision of 8 October 2021. This adaptation package was also identified on 3 March 2023 with a view to anticipating risks, mitigating those risks and maximising the potential benefits of climate change. These measures have been developed bilaterally with the relevant administrations and in line with the EU Governance Regulation (2018/1999), the EU Climate Law (2021) and the EU Adaptation Strategy (2021).

- Contribute to the adaptation priorities set out in the European Adaptation Strategy (2021);
- Decision of the National Climate Commission of 28 June 2021 to instruct the Working Party on Adaptation to propose a new national adaptation plan by spring 2022. Due to the prioritisation of regional and federal adaptation plans, the new National Adaptation Plan will be prepared in collaboration with the regions, with strong measures in the various sectors concerned by the end of 2023. This national plan will be developed taking into account the focal points specified in the European Adaptation Strategy (2021); focus on nature-based solutions, information gathering (smarter adaptation), closing the climate protection gap (insurance), etc.

The Federal Climate Change Service organised on 16 October 2023 a workshop entitled ‘Measures to Closing the Climate Insurance Protection Gap in Belgium’, the aim of which was to bring together key stakeholders to develop concrete proposals for the next Belgian National Adaptation Plan (NAP). The workshop provided a platform for fruitful discussions and knowledge sharing on climate insurance challenges and opportunities in Belgium. During the event, working groups discussed measures to close the protection gap and strengthen the resilience of our communities and economy. A follow-up report (published at the end of November 2023) summarises the main ideas, reflections and proposals expressed at the workshop¹¹³.

The European Adaptation Strategy provides for frequent updates of national adaptation strategies and plans. Therefore, the National Adaptation Strategy should be reviewed according to its current relevance, followed by an update in 2023. In addition, it also calls for a robust monitoring and evaluation framework. The European Commission therefore undertakes to:

- Improve monitoring, reporting and evaluation of adaptation using a harmonised framework of standards and indicators;
- Provide tools for ex-ante evaluation of projects in order to better identify co-benefits and positive impacts on the economy of adaptation and prevention projects.

It is also a priority at federal, regional and national levels.

Details of the federal adaptation policy can be found in point 3.1.1 i. 9A.

Flemish Region

In autumn 2022, the Flemish Government approved the Flemish Climate Change Adaptation Plan¹¹⁴. The Flemish Climate Change Adaptation Plan is expected to better prepare Flanders for the effects of

¹¹³<https://climat.be/insurance-gap-2023>

¹¹⁴Flemish Plan Adaptation to Climate Change 2030, <https://omgeving.vlaanderen.be/nl/klimaat-en-milieu/klimaat/vlaams-klimaatadaptatieplan>

climate change, both in the short term by 2030 and in the longer term by 2050.

In this sense, the Flemish Climate Change Adaptation Plan is closely aligned with the (new) European Climate Change Adaptation Strategy, which has committed to a higher ambition on climate resilience and aims to make Europe a climate-resilient society by 2050 by focusing on smarter adaptation, more systemic adaptation and accelerating adaptation. The Flemish Climate Change Adaptation Plan responds to this request and contains a number of implementation strategies and measures applicable on the ground. To strengthen the link with the European strategy, Flanders is also following a number of European knowledge-sharing initiatives such as Climate-ADAPT.

The plan contains six strategic lines, each consisting of several action points with concrete measures to support and facilitate the development and implementation of the plan:

- Flanders builds and connects green and blue infrastructure everywhere
- Availability and use of water
- Water space according to water security and drought prevention
- Restoration and climate-smart management of nature and forests
- Climate-friendly health policy
- Collaboration and coordination

Throughout these different policy lines, maximum efforts will be made to jointly address climate change adaptation and mitigation. Examples include:

- Preparation of management plans and management of various ecosystems such as wetlands, peatlands and forest areas (extension). In doing so, an integrated approach should, on the one hand, make these ecosystems more resilient to climate change and, on the other hand, achieve carbon storage, maintain or increase biodiversity and improve quality of life.
- The use of the EPB rules (relating to the energy performance of buildings) as a tool to support the construction of buildings that are heat resilient.
- increasing soil organic matter content, which contributes to both soil carbon storage (mitigation) and water retention capacity.

Region Walloon

The Air-Climate-Energy Plan (PACE) 2016-2022 already expressed the need for a single database drawn up covering the various areas and impacts. This basis should bring together results from different known projections so as to provide a solid knowledge base based both on past experience and on a list incorporating new climate change impact indicators. This work must be iterative and should be expanded in order to usefully complement existing and future scoreboards.

Nevertheless, it is clear that understanding of the future climate at regional level requires integrating the results of a larger number of models, in different geographical resolutions, with expertise on climate processes. This work extends over several years and forms part of the basic knowledge needed to articulate a coherent adaptation strategy that depends to a large extent on the time horizon. Research coordination will have to take place over many years and in an inter-regional and international context.

The Walloon Adaptation Strategy (SWA) will therefore have to respond to this cross-cutting need and

collaboration between the various entities and sectors.

The Walloon adaptation strategy will be based repeatedly on the recommendations of various Walloon reports and studies, some studies are still being implemented, while others have been completed. Non-exhaustive: the “Multi-disciplinary Strategic Plan of the Vesdre catchment area”, the “Programme of (re) sustainable development of neighbourhoods”, the “3th Walloon Sustainable Development Strategy”, etc.

The report "Adapting to climate change in Wallonia: Synthesis and points of attention for the planned study "(April 2022) is particularly prominent, with two strands: critical evaluation of the existing situation and identification of points of attention for the multidisciplinary adaptation study.

This report therefore provides an up-to-date scientific reference framework capable of identifying and challenging the objectives, sites, risks, constraints and adaptation needs in Wallonia.

Finally, at the beginning of November 2022, the Walloon Government approved the specifications for this multidisciplinary study ‘Diagnostic of vulnerabilities’. Increasing Walloon resilience through adaptation to climate change. Scenarios, impacts and measures’ aims to move from understanding the phenomenon of climate change to planning and implementation of adaptation actions in an effective, efficient and socially just way in the short, medium and long term.

Brussels Capital Region

As regards adaptation to climate change, Article 4 of the European Climate Law provides that Member States shall ensure continuous progress in improving adaptive capacity, strengthening resilience and reducing vulnerability to climate change, in line with Article 7 of the Paris Agreement. Member States shall develop and implement adaptation strategies and plans that include comprehensive risk management frameworks, based on robust climate and vulnerability baselines and progress assessments. This ambition is pursued in the PACE.

The long-term strategy

Belgium fully supports the Paris climate ambitions. As part of the UN Framework Convention on Climate Change (UNFCCC), the Paris Climate Agreement was adopted at the 21th Climate Conference (COP21) at the end of 2015. The Paris Agreement is a legally binding international treaty on climate change, which sets the objective of ‘keeping the increase in global temperatures well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels’. Belgium and the EU as a whole have also ratified the Paris Agreement.

The Advisory Committee, which has adopted the long-term strategy, commits to updating the national long-term strategy, which is a minimum commitment, at regular intervals, thus confirming the common commitment to move towards carbon neutrality. The long-term strategy will be updated, inter alia, in the light of the evolution of the situation of each entity, in the light of the European targets for reducing greenhouse gas emissions.

Flemish Region

In order to prepare for the energy and climate transition, the Flemish Government, in consultation

with citizens, businesses and civil society, has already drawn up a long-term vision which was approved by the Flemish Government on 20 December 2019: the Flemish Climate Strategy 2050. Through this document, Flanders wishes to join forces to work together towards a common final goal, with Flanders taking on its role as an innovative pioneer. This long-term perspective also avoids potential lock-ins. The long-term strategy aims at a 85 % reduction in greenhouse gas emissions in non-ETS sectors by 2050, with the ambition to move towards full climate neutrality. The document describes the indicative sectoral contributions and the basis for achieving this objective.

Brussels Capital Region

The Climate Order of 17 June 2021 makes the following climate commitments for the Region:

- Reduce the Region's direct greenhouse gas emissions by at least 90 % compared to 2005 in 2050, in order to achieve carbon neutrality, and by at least 40 % in 2030, and by at least 67 % in 2040.
- Reduce indirect greenhouse gas emissions by a trajectory comparable to direct emissions by 2050.

The Brussels Government has also made a commitment, in accordance with the Climate Order, to develop a long-term 30-year strategy aimed in particular at clarifying the sectoral distribution of direct and indirect greenhouse gas emission reduction targets, including the work of the Citizens' Assembly for Climate.

CCS/CCU

CCS is governed by Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide. CCS at sea (cross-border) must also comply with the London Protocol (Anti-Dumping Treaty) and the OSPAR Convention.

By 2030, initial projections indicate that industrial installations in Belgium will capture around 5 Mt of CO₂, entirely in the Flemish region. After 2030, this capture will further develop in the Flemish and Walloon regions. For the continued implementation of CCS in Belgium, as far as interested entities are concerned, the lack of cost-effective storage potential on the national territory creates a need for storage capacity in third countries. One of the legal conditions for such cross-border cooperation is the conclusion of a bilateral agreement between the exporting and importing States in order to meet the requirements of the London Protocol. The Belgian Federal Government and the Flemish Region have concluded such an agreement with Denmark, the first of its kind in the world¹¹⁵. The intention is to conclude similar agreements in line with the London Protocol with other countries in the near future.

The Federal State, the Flemish Region, the Walloon Region and the European Commission will also seek to harmonise, or at least align, bilateral agreements at North Sea level.

This can be done by continuing to participate in the meetings of the European expert groups and in the North Sea Basin Task Force.

¹¹⁵ Denmark, Flanders and Belgium sign an unprecedented agreement on cross-border transport of CO₂ for geological storage, Danish Ministry of Climate, Energy and Public Services, 29 September 2022. <https://en.kefm.dk/news/news-archive/2022/sep/denmark-flanders-and-belgium-sign-groundbreaking-arrangement-on-cross-border-transportation-of-co2-for-geological-storage->

Federal State

The Federal Government intends to continue its efforts to develop the CCS as stipulated in Directive 2009/31/EC. In line with the Rio Declaration, the federal government continues to prioritise resource-based measures and wishes to further reduce the use of fossil fuels.

There is a huge potential for carbon storage in the maritime area, mainly in depleted gas and oil deposits. As the Belgian sea area does not have such storage sites¹¹⁶, international cooperation with neighbouring countries should continue. Denmark, Norway, the Netherlands and the United Kingdom are countries with offshore storage sites.

The aim is to conclude a similar agreement with Norway in 2023, as well as with the Flemish and Walloon regions.

Other countries with which close contacts are maintained and with which similar agreements could be envisaged in the future are the Netherlands and the United Kingdom. However, the latter still faces a number of *Brexit related issues* with regard to the application of the CCS Directive.

We will also continue to harmonise, or at least align, bilateral agreements at North Sea level. This can be done by continuing to participate in the meetings of European expert groups and in the North Sea Basin Task Force.

Where appropriate, the federal government will continue to create the regulatory framework within its competences at national level to enable CCS, provided that all technical and environmental rules are complied with, and without prejudice to the principles of Belgian climate policy.

The Federal Government also continues to organise contacts with Belgian stakeholders, all federal and regional cabinets, government departments and stakeholders (companies, infrastructure operators, etc.) regularly informing each other about their CCS initiatives.

Flemish Region

The Flemish concept note **"Visie op CCUS: carbon capture, reuse and storage"**¹¹⁷ was published at the end of 2021, setting out a vision of how Flanders intends to exploit its CCUS potential. Flanders is ideally placed to develop and deploy CCUS technology:

- Flanders has the necessary know-how in its institutions and companies to apply advanced capture technologies;
- Flanders occupies a central position in the North-West European industrial cluster and is relatively close to the major CO₂ storage sites in the North Sea basin;
- The presence of Europe's largest integrated fuel and chemical cluster in Flanders generates significant CO₂ emissions concentrated on a relatively small surface area. The existing or planned pipeline network, clusters and ports make it possible to organise the transport of CO₂ efficiently. This makes Flanders a place to create new collaborations and integrate innovative systems that capture, collect or sequester up to tens of millions of tonnes of CO₂, or transform them into useful products.

The transport of CO₂ caught over longer distances can be carried by boat or pipeline. The choice of one

¹¹⁶ Opportunities from storage of CO₂ in Belgium, K. Welkenhuysen and al. 2011.
<https://www.sciencedirect.com/science/article/pii/S1876610211007399>
<https://www.sciencedirect.com/science/article/pii/S1876610211007399>

¹¹⁷ https://assets.vlaanderen.be/image/upload/v1659014412/Conceptnota_-_visie_op_CCUS_-_koolstof_opvang_hergebruik_en_opslag_2021_wcj9ao.pdf

of the two options will be determined by the quantities to be transported, the distance to be travelled and the conditions on the ground. In addition to the long-distance transport infrastructure, industrial clusters also need an efficient CO₂ network and possibly temporary storage of CO₂. Different plants can inject their CO₂ onto this backbone, where CO₂ can be diverted for local use options (CCU) or cross-border transport (CCU and CCS).

Flanders is committed to supporting CCS networks and CCU facilities:

- In the framework of the Klimaatsprong, there is a working group on infrastructure (with four sub-working groups: “Port and import infrastructure”, “Electricity networks”, “Pipelines” and “Permit”). This working group will identify infrastructure needs for CO₂ networks as part of the Industrial Transition Programme. In consultation with the competent authorities and pipeline companies, the relevant routes and ways to build or reuse the infrastructure shall be studied. Efforts are being made to develop pipeline transport between industrial clusters and ports, both in Flanders and in cooperation with neighbouring countries. Maximum use will be made of European funding channels for projects around CCUS. Targeted co-financing of promising CCUS projects maximises the success rate of EU grants and creates leverage through this Flemish support. Flanders, through its support mechanisms, clearly supports Flemish projects and assists companies in their applications to the European institutions.
- Flanders concludes strategic partnerships with pioneering CCUS countries. We are also in contact with countries with appropriate storage sites, with a view to signing cooperation agreements for the cross-border transport of CO₂.

- It is also developing a regulatory framework for CCUS in Flanders.¹²⁰
- The 2009 Subsol Profond Decree and its Implementing Order are being updated and adapted to new knowledge, new projects and new needs in the context of CCUS. It will also develop a regulatory framework for CO₂ networks, based on the core principles of third party access and neutrality, including a framework for CO₂ liquefaction infrastructure and temporary storage. In addition, consideration will also be given to whether other regional regulations, such as the Flemish Spatial Planning Code or ETS regulations, need to be adapted.
- As the network grows and the market develops, stricter regulation is envisaged and regulated tariffs could be offered, where appropriate.

Region Walloon

Given the increasing maturity of carbon capture, storage, use and transport devices, Wallonia can expect to have the potential to reduce its emissions, in particular process, by 2030, let alone 2050.

The projected estimates for 2050, based on stakeholder planning, show transport and storage opportunities equivalent to 6 million tonnes of CO – annual. This corresponds to the entire process emissions of the region. Process emissions correspond to emissions from cement, iron, steel, aluminium, pulp, paper and refineries.

Brussels Capital Region

The Brussels-Capital Region does not lend itself to CCS projects because of its urban nature and the lack of energy-intensive industry.

2.1.2. Renewables

1. The elements referred to in Article 4(a) (2) of Governance Regulation A

At European level, a provisional political agreement has been reached in favour of an overall EU target of at least 45 % of renewable energy by 2030, of which at least 42.5 % will be achieved by Member States. The Belgian contribution is the sum of the federal and regional contributions. It is therefore a bottom-up approach.

Belgium supports the need to accelerate the energy transition and the phasing out of fossil fuels. Given the high demographic and geographical constraints,

as a result of the presence of groups of energy-intensive industries, the expected national contribution according to the formula in Annex II in the revision of the Renewable Energy Directive is extremely difficult to reach on Belgian territory for Belgium and even seems impracticable. On the other hand, our geographical location in central Europe allows renewable electricity from the North Sea to be easily transported to the

The geological¹²⁰ storage of CO₂, with a view to avoiding greenhouse gas emissions, is a regional competence for environmental protection. The transport of CO₂ – intended for geological storage – is also intended to protect the environment and falls within this regional competence.

shore and possibly inland to the rest of Europe.

Despite these challenges, Belgium will constructively contribute to European objectives.

If, under the ambition guarantee mechanism described in the Governance Regulation, additional obligations are imposed on Belgium to bring its renewable energy contribution closer to the 34 % resulting from the formula in Annex II of the Governance Regulation, Belgium will take the necessary measures, through additional agreements during the negotiations on burden sharing.

The future energy system will be based on renewable electricity, combined with renewable and climate-neutral molecules in the transport sector, as well as sustainable heating and cooling systems. The establishment of the necessary supply chains is therefore crucial to ensure our long-term security of supply. We also need to ensure that molecules and electrons can interact in a more complementary way and through further system integration. The deployment of renewable technologies such as solar boilers, heat pumps, solar photovoltaic energy, biogas, biomass, geothermal, hydropower and offshore/onshore wind energy will support this transition in a cost-effective manner.

The Belgian contribution to the European target, based on the compilation of individual entity projections (WAM scenario), amounts to a renewable energy share of 21.7 % in 2030, following the table below:

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Numerator SER (GWh)	51067	55161	55574	57019	58906	60783	62939	66204	69209	73174	82209
<i>Federal State</i>	<i>8353</i>	<i>8372</i>	<i>8034</i>	<i>8061</i>	<i>8038</i>	<i>8038</i>	<i>7667</i>	<i>7921</i>	<i>8269</i>	<i>9649</i>	<i>16165</i>
<i>Flemish Region</i>	<i>25210</i>	<i>27338</i>	<i>26537</i>	<i>26818</i>	<i>27596</i>	<i>28303</i>	<i>28963</i>	<i>30107</i>	<i>30800</i>	<i>31405</i>	<i>31974</i>
<i>Region Walloon</i>	<i>17026</i>	<i>18498</i>	<i>20280</i>	<i>21415</i>	<i>22551</i>	<i>23802</i>	<i>25668</i>	<i>27534</i>	<i>29513</i>	<i>31493</i>	<i>33472</i>
<i>Brussels-Capital Region</i>	<i>879</i>	<i>942</i>	<i>723</i>	<i>725</i>	<i>720</i>	<i>716</i>	<i>718</i>	<i>718</i>	<i>703</i>	<i>703</i>	<i>675</i>
SER denominator (GWh)	392820	423347	433186	429701	426246	422810	415175	407532	399199	389799	379541
RES (%)	13,0	13,0	12,8	13,3	13,8	14,4	15,2	16,2	17,3	18,8	21,7

Table 25: Compilation of WAM projections 2020-2030

Source: 2020-2021: SHARE statistics; 2022-2030: compilation of entities WAM projections

Note: For 2020 & 2021, the differences between the sum of entities and the total are due to wind standardisation issues.

The Federal Government will present an annual report starting from X + 2 on the difference, if any, between the mixing rate of the PNEC for 2019 and the achieved mixing rate;

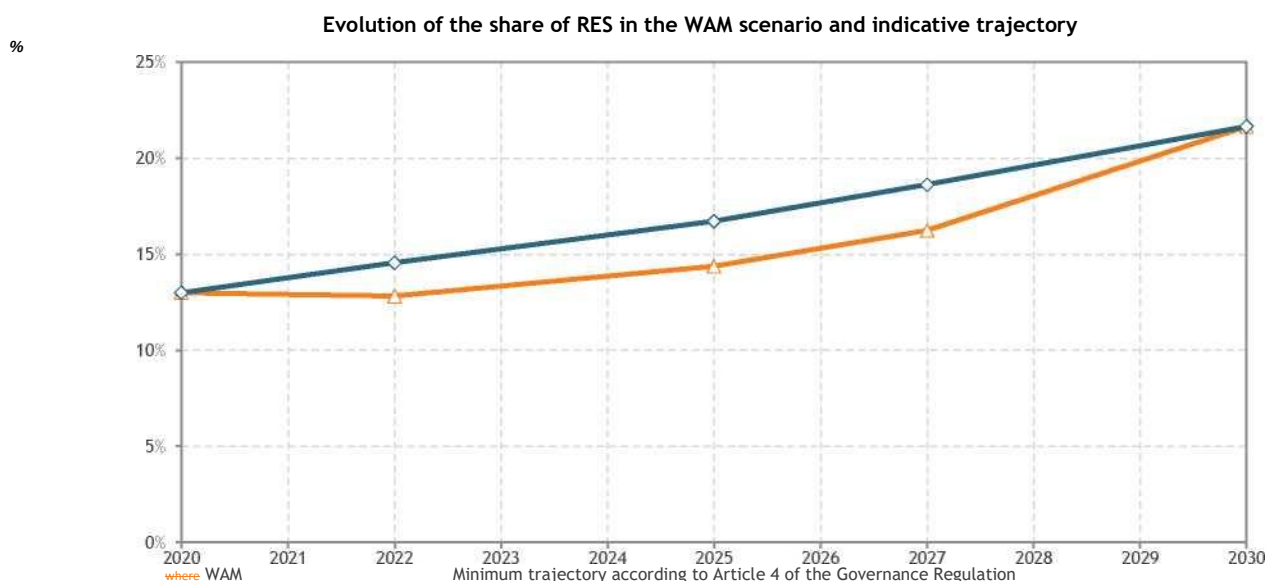
If the above-mentioned monitoring shows that the alternative measures taken by the Federal Government, contained in this NECP, are insufficient to achieve the same emission reduction and contribution to the renewable energy target, the Federal Government will take further action.

According to Directive 2018/2001 (Renewable Energy Directive), the share of energy from renewable sources in a Member State's gross final consumption of energy from 1 January 2021 shall not be lower than the binding 2020 target. For Belgium, this target is 13 % of domestic final consumption. Belgium must therefore continue to respect this minimum share even after 2020.

In the partial burden-sharing agreement 2021-2030, the Regions and the Federal Government undertake to maintain the minimum share of 13 % from 2021. If it transpires that, for a given year, final consumption is too high to achieve this minimum target with the contributions of each entity, the identified deficit will be distributed as follows:

- Flemish Region: 51.04 %.
- for the Walloon Region: 30.24 %.
- for the Brussels Capital Region: 1.73 %.
- for the Federal State: 17.00 %

According to WAM's projections, the growth path towards the 2030 renewable energy target will be below the required trajectory as defined in the Governance Regulation. Individual entities have committed to examine whether the growth path can be accelerated, for example by taking additional measures.



Federal State

The federal share of this contribution consists of the share of offshore wind energy, and the share of biofuels according to the division of competences between the federal state and the regions.

Due to our unique geographical location, we must also strive to bring renewable electricity from the North Sea that arrives at home and further into the land, to the rest of Europe. We also need to ensure that molecules and electrons can interact in a more complementary way and through further system integration.

The federal government will accelerate its efforts to produce renewable energy, to this end the government has decided¹²¹ to:

- Minimising existing thresholds (radars distances, height restrictions, area and siting of exclusion areas, etc.) for renewable energy deployment by engaging with Skeyes and Defence, which can lead to a potential increase of 1.5 GW of renewable energy.
- Take the necessary initiatives to ensure that the first wind turbines in the Princess Elisabeth area are operational by 2028. Indeed, the North Sea offers enormous potential for the production of renewable energy at an affordable price, both inside and outside the Belgian part of the North Sea.

¹²¹ Kern decision on security of supply and accelerating the energy transition towards greater energy independence, PM.be (Alexander De Croo), 18 March 2022. <https://www.premier.be/nl/verlenging-levensduur-kerncentrales-doel-4-en-tihange-3>

In order to make the most of this potential, it was decided to increase the capacity to be installed in the Princess Elisabeth area (ZPE) to a maximum of 3.5 GW. As explained in the Recovery and Resilience Plan, we want to connect this capacity to an offshore island where Danish and UK interconnectors can also be connected to our country. The feasibility of the latter solution is examined in the context of the Federal Electricity Transmission Network Development Plan, subject to an environmental permit.

- Examine how offshore capacity in the North Sea can be optimised and developed to reach an installed capacity of 8 GW after 2030¹²².
- Increase renewable electricity generation in the first area. A study on repowering is ongoing. The aim of this study is to establish a roadmap for repowering the Eastern area. Thanks to various optimisation, both spatial and temporal, an additional capacity of 600 MW is potentially possible.
- Take the initiative to set up an accelerated working group with the North Sea neighbours to accelerate the development of an offshore wind grid.
- Accelerate investments in offshore solar energy (floating solar) with a potential of 1 GW.
- The existing eastern area (2.3 GW), the SEZ (max. 3.5 GW), floating solar (1 GW) and repowering the Eastern area (+ 600 MW) already have a total potential of 7.4 GW. Further research is therefore needed to reach 8 GW at sea.
- Develop research on investments in aquaculture farms to promote the cultivation of algae as a feedstock for biofuels.
- Explore how we can better organise the development of grid infrastructure in the North Sea in order to make this potential available more quickly and effectively for all European countries, through the North Sea countries. Potential market mechanisms that could facilitate this acceleration are also explored. In addition to the development of SEZ and energy island¹²³, we are exploring the possibility of importing additional renewable energy from other countries through submarine cables, even after 2035.

Flemish Region

Flanders is committed to producing 31 974 GWh of renewable energy by 2030.

Region Walloon

In its resolution of 28 September 2017, the Walloon Parliament called on the Government to set itself the target of 100 % renewable energy in final energy consumption in Wallonia by 2050. This objective is also reflected in the long-term strategy for Wallonia ¹²⁴.

The targets envisaged within PACE result in final renewable energy consumption of around 31 TWh in 2030, doubling compared to the current situation. **The total share of renewable energy sources in 2030 is in the range of 2829 %** ¹²⁵

Nevertheless, the following statistical and methodological developments since the adoption of PACE show projections that estimate the expected share of renewable energy sources (RES) in consumption in 2030 at 31 %, i.e. around 33 TWh in 2030. This is technically due to:

- Upward effect of bringing the accounting of heat from cogeneration into line with the European methodology (IEA/Eurostat) on the calculation of renewable heat, including the reference year.
- Results of the TIMES model's choices to use biomass more for heat purposes, in particular given the

122 Implementation of the Eshberg Declaration of May 2022: <https://iro.nl/app/uploads/2022/06/The-Eshberg-Declaration-002.pdf>

Implementation of the Eshberg Declaration of May 2022: <https://iro.nl/app/uploads/2022/06/The-Eshberg-Declaration-002.pdf>

modelling of the price of tonne CO – on the potential for renewable heat in industry.
This growing share results from an increase in renewable production, but also from a decrease in gross final energy consumption (see energy efficiency dimension). ¹²⁴

GWh	Achieved 2005	Achieved 2020	PWEC (2019) Objective 2030	INTRODUCTION 2030 Objective 2030 ¹²⁶

¹²³ subject to obtaining an environmental permit

¹²⁴ long-term strategy for Wallonia (SLT 2050) "Towards a climate-neutral Wallonia in 2050" (2019)

¹²⁵ the table below envisages a range of gross final consumption corresponding in total to the range of 2829 % RES share in final consumption, with equal numerator.

Electricity	988	5.559	10.081	13.638
Heat¹²⁵	5.309	9.133	14.233	15.607
Transport¹²⁶	0	2.396	3.187	2.005
Consumption final renewable	6297	17.088	27.501	31.250
Gross final consumption	152.194	122.691	111.032	106.274 111.067
Share from SER within the final consumption	4.1 %	13.9 %	23.5 %	28 – 29 %

Table 261: Trend in the share of renewable energy (2005, 2020, 2030 (PWEC 2019), and PACE 2030 targets

In accordance with the guidelines set out in Article 4 of Regulation 2018/1999 on the Governance of the Energy Union, the indicative trajectory is as follows:

	2020	2022	2025	2027
Indicative trajectory% RES	13 %	16 %	20.1 %	23.7 %

Table 27: Indicative trajectory: renewable share in 2022, 2025 and 2027

Brussels Capital Region

The RBC Government has undertaken to reach the threshold of 1 250 GWh of energy production from renewable sources by 2030. This will be achieved by mobilising an intra-muros (minimum 470 Gwh) and extra-muros policy.

The limited potential of the Region due to its spatial constraints does not allow it to deploy as much renewable energy production on its territory as the other regions. However, in order to respond to the climate emergency and to contribute to the Belgian effort, the CBR is aiming for the extra-muros deployment of renewable potential under the mechanisms provided for in Directive 2018/2001.

II. Estimated trajectories for the sectoral share of renewable energy in final energy consumption from 2021 to 2030 in the transport, electricity and heating and

The ¹²⁴new projections resulting from technical and methodological changes and used as a basis for analysis in Chapters 4 and 5 give the following figures: electricity 13.790 GWh, heat 17.667 GWh, transport 2.014 GWh, renewable final consumption 33.471 GWh, gross final consumption 106.710 GWh, by RES in final consumption: 31.4 %

¹²⁵Biogas injected into the grid (5 % envisaged by 2030, integrated into emission results) is not counted. This represents an additional 1.200 GWh.

¹²⁶On the basis of a biofuel incorporation rate of 10.45 % set by the Federal Government in the 2019 National Climate Energy Plan and the use of biogas (renewable electricity in transport is counted as electricity).

cooling sectors

In 2020, 25 % of Belgian electricity was produced from renewable sources. The estimated trajectories per renewable energy technology to achieve the overall and sectoral renewable energy trajectories from 2021 to 2030 are presented below per entity.

Following the adoption of REDIII, Member States must achieve the following sub-objectives:

- For renewable energy in heating and cooling, the binding annual average target for the period 2026-2030 shall be increased to at least 1,1 percentage points as an annual average. Member States which (under certain

conditions) include waste heat and cold to achieve the target, or Member States that (under certain conditions) want to make use of the possibility to count renewable electricity must indicate this in their National Energy and Climate Plan. — The target for renewable energy in transport is calculated differently in RED III, as all transport sectors (including maritime bunkering, subject to restrictions) are taken into account in the denominator. The target is a greenhouse gas intensity reduction of -14.5 % by 2030, or a share of renewable energy of at least 29 % by 2030.

- The combination of advanced biofuels and RFNBO shall be at least 1 % in 2025 and 5.5 % in 2030. By 2030, at least 1 % of fuels should be RFNBO, with a target of 1.2 % for the maritime sector.
- By 2030, 42 % of hydrogen used in industry should be RFNBO. By 2035, it will be 60 %. This target may be reduced if a Member State makes a contribution to the European target at least equal to the contribution calculated in accordance with Annex II of the Governance Regulation, i.e. 34 % for Belgium. In addition, the share of hydrogen from fossil fuels must be below 23 % in 2030 and 20 % in 2035. Some projects should not be taken into account in the objective.

In addition, Member States will have to consider indicative targets:

- An indicative target for innovative renewable energy technologies of at least 5 % of newly installed renewable energy capacity by 2030
- For renewable energy in industry, an indicative target of 1,6 percentage points of average annual increase is set for 2021-2025 and 2026-2030. Member States may include waste heat and cold, but this leads to a higher target.
- An indicative target of 2,2 percentage points of average annual increase is imposed for district heating and cooling. Member States that wish to count renewable electricity into the target under certain conditions must include it in their National Energy and Climate Plan.
- For renewable energy in the middle of buildings, an indicative target of 49 % is imposed at European level. Member States must define their contribution through their National Energy and Climate Plan that is consistent with this objective.

The objective of the different entities in Belgium is to include the information and measures necessary to achieve these sub-objectives in the final NECP.

Based on the compilation of entity projections and on the basis of the current calculation methodologies (REDII), the sectoral projections for 2030 are as follows:

- Renewable electricity share of 48.5 % in 2030 (compared to 26 % in 2020)
- Renewable heat share of 15.4 % in 2030 (compared to 9.2 % in 2021)
- Share for renewable transport (electricity and biofuels) of 28.2 % in 2030 (compared to 10.3 % in 2021)

In order to achieve the minimum share of renewable energy in the transport sector, as provided for in the Renewable Energy Directive, the Act on Product Standards for the Integration of Energy from Renewable Sources into fossil transport fuels of 31 July 2023 was adopted at federal level. This law requires suppliers of liquid and gaseous fuels to provide a minimum proportion of renewable fuels (category A biofuels, category B biofuels, category C biofuels, recycled carbon fuels, RFNBO and/or renewable electricity) on an annual basis

compared to the total amount of fuels placed on the market. For this purpose, they may register the quantities of renewable fuels placed on the market in a publicly managed registry, after which they will be allocated energy units equivalent to the quantities of renewable fuels registered. They must return these energy units to prove and ensure compliance with the product standard for the share of renewable energy in transport fuels. Operators of electricity supply infrastructure for the road and rail transport sector can also contribute through this register, but are exempted from the obligations.

The share of renewable energy to be included in transport fuels to meet the product standard is gradually increasing to 13.9 % by 2030 (including multipliers for certain types of renewable fuels). The scheme allows fuel suppliers to choose the renewable fuels they will use to meet these obligations. Therefore, the volumes used by each of these fuels cannot be predicted today. However, the 2019 NECP assumed that this target would be fully achieved by biofuels.

In the absence of alternative references, some regions assumed in their projections that market participants would nevertheless follow the biofuel blending pathway as included in the 2019 NECP.

The Federal Government has undertaken to report annually on any difference between the percentage of blending included in the 2019 NECP and the percentage of blend achieved.

If the above-mentioned monitoring shows that the alternative measures already taken by the federal government are insufficient to achieve the same emission reduction and contribution to the renewable energy target, the federal government will take further action.

Federal State

CO2 neutral fuels in the transport sector

Companies that place diesel and/or petrol for consumption are required to demonstrate that, on an annual basis, the volumes released for consumption contain a nominal volume of sustainable biofuels.

Since 1^{January} 2022, the mandatory share of the rate of incorporation of sustainable biofuels in road transport fuels has been at least 10.2 % (in terms of energy, including double counting) for all diesel and petrol. The Law of 16 December 2022 provides for the progressive abolition of the contribution from biofuels produced from palm oil or soya bean oil^{from} 1 January 2023 and¹ July 2023 respectively¹²⁷.

In addition, in the context of the transposition of REDII, a greater contribution of other forms of renewable energy to transport objectives is envisaged. A registry will be set up to enable the accounting of renewable energy units for the transport sector and thus to switch from fossil fuels to renewable electricity and renewable molecules.

As stipulated in the NECP 2021-2030, the Federal Government is conducting a biennial study to assess the technical feasibility of the blending rate, to ensure the availability of raw materials, to monitor social, economic and environmental impacts and to identify potential conflicts of use, to ensure the availability of advanced fuels, including recycled carbon fuels, to monitor technological developments on the European market, to monitor the availability of other renewable energy sources and to reduce costs for consumers¹²⁸.

Once the final results of the ongoing negotiations on the revision of the REDII Directive and the ongoing negotiations on the FuelEU Aviation and Refuel Maritime proposals at European level are finalised, the federal

General Energy Policy¹²⁷ Briefing 2023, Belgian Chamber of Representatives (Minister of Energy, Tinne VAN DER STRAETEN), 31 October 2022. <https://www.dekamer.be/doc/FLWBpdf/55/2934/55K2934019.pdf>

¹²⁸plannationalenergieclimat.be

government will transpose into law the various provisions of these three pieces of legislation that fall within its remit, or other elements of the Fit For 55 package.

Close consultation with neighbouring countries also remains essential in this regard. Lessons learned from policy implementation, studies carried out during the implementation of the 2023 NECP and analyses of relevant literature as well as best practices from other Member States will be taken into account. The implementation will also take into account the various declarations signed by Belgium, which include the maximum electrification of the transport sector.

As Belgium is the second largest bunkering port for international maritime transport, the energy demand of this sector in Belgium is almost equal to that of the road and rail transport sectors, i.e. 95 % for Belgium compared to 16 % for the EU average.

This means that, on the one hand, the demand for renewable energy from the international maritime transport sector and, on the other hand, the integration (partial or non-partial) of the international maritime transport sector into Belgium's targets for the use of renewable energy in the transport sector will have a significant new impact on Belgium.

Moreover, given the atypical situation of the relative energy demand of the international maritime transport sector compared to other transport sectors and the fact that it is very different from the EU average, particular attention should be paid to the possible impacts on playing-field and competitiveness in other sectors or on household purchasing power.

Flemish Region

Estimated trajectories for the sectoral share of renewable energy in final energy consumption (2021-2030) in the electricity, heating and cooling and transport sectors

Production (GWh)	2021 Inventory	2022 Projection	2023 —	2 024 —	2025 —	2026 —	2 027 —	2 028 —	2 029 —	2030 Projection
Green heat	9.794	9.127	9.560	9.784	9.990	10.282	10.681	10.959	11.248	11.574
Green electricity	10.406	11.675	11.395	11.893	12.553	13.350	14.193	14.897	15.589	16.255
Biofuels in the transport	5.622	5.734	5.863	5.920	5.760	5.331	5.234	4.943	4.568	4.145
Total	25.822	26.537	26.818	27.596	28.303	28.963	30.107	30.800	31.405	31.974

Table 28: Estimated trajectories for the sectoral share of renewable energy in final energy consumption (2021-2030) in the electricity, heating and cooling and transport sectors

Region Walloon

Renewable electricity targets

The target for renewable electricity generation by 2030 is estimated at just under 14 TWh, a growth of 250 % compared to the current situation.

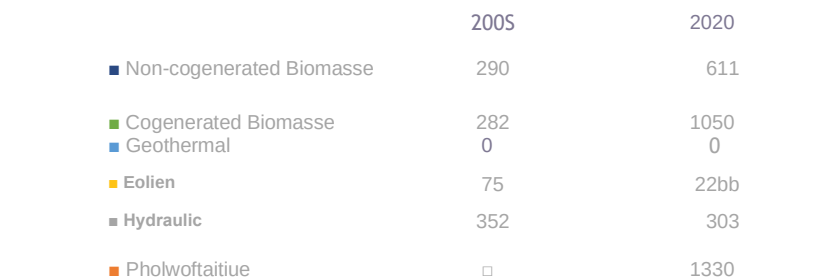


Figure 12: Renewable electricity generation by technology in 2005 and current situation (GWh)

The technological mix below, defined in PACE, indicates the main development guidelines envisaged on the basis of the technical and economic potential identified for each sector. The overall target for the renewable share of final consumption is fixed and the breakdown by sector may be reviewed by the Government on the basis of the governance arrangements provided for in Chapter 6 of the PACE.

Firstly, significant progress is envisaged for the wind and photovoltaic sectors.

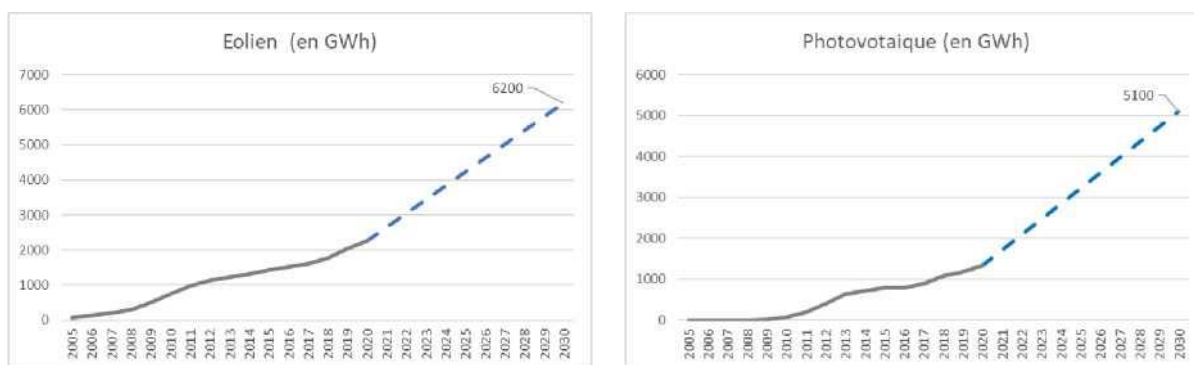


Figure 13: Photovoltaic and wind energy targets for 2030, seen in the light of historical developments 2005-2020

For **wind**, the envisaged increase is proportional to the increase in the overall climate target, reaching 6 200 GWh in 2030. This technology is complementary to PV in terms of timing of production. The objective will be achieved through the implementation of the new Pax Eolienica, taking into account in particular the potential of *repowering* existing wind turbines, and the removal of non-financial barriers to wind power deployment; as well as by the other actions described in Chapter 3.

For **photovoltaic**, the target of 5 100 GWh takes into account the potential based in particular on a study by the Becquerel Institute.¹³¹ This shows a plausible potential of 6.000 GWh in 2030, based on a policy-driven scenario.

Other technologies (biomass, biomass, hydro and geothermal cogeneration) have less potential and a minor share of the electricity mix:

- For **geothermal energy**, it is assumed at this stage that several pilots will be carried out by 2030 for an estimated total of 40 GWh¹³².
- For **biomass** (electricity only), in 2030 there is still production linked to the incineration of renewable waste (90 GWh), but no more Awirs production (stopped since 2020).
- For **cogeneration from solid biomass and biogas**, the growth envisaged is higher than that of PWECE 2019 between 2020 and 2030. This target (around 1 768 GWh) implies going beyond the files on track at present.¹³³
- For **hydropower**, it is assumed to activate almost the entire identified potential of 480 GWh, i.e. 440 GWh. ¹³⁴

Renewable Heat targets

Renewable heat production by 2030 is in the order of 18 TWh¹³⁵, an increase of 180 % compared to the current situation.

	2005	2020
■ Thermal soil	14	112

¹³¹Bosch E. and alli. 2020 Wallonia's photovoltaic potential and its applications. Contextualisation and prospects. Ed. Institute Becquerel. SPW Energy

¹³²It should be noted that in the new projections, used for the WEM and WAM scenarios of Chapters 4 and 5, the geothermal potential is placed in renewable heat and not in electricity. This is due to the choice of the TIMES model to use biomass more for heat purposes, given in particular the modelling of the price per tonne of CO₂ – on the potential for renewable heat in industry.

¹³³For co-generated biomass, the new projections used for the WEM and WAM scenarios of Chapters 4 and 5 vary slightly from the PACE objectives due to the alignment of the accounting of CHP with the European methodology (IEA/Eurostat) on the calculation of renewable heat. The electricity potential identified for co-generated biomass is 1 768 GWh.

¹³⁴See CAPGEMINI, 2014



The technological mix below, defined in PACE, indicates the main development guidelines envisaged on the basis of the technical and economic potential identified for each sector. The overall target for the renewable share of final consumption is fixed and the breakdown by sector may be reviewed by the Government on the basis of the governance arrangements provided for in Chapter 6 of the PACE.

All technologies and sectors are affected to achieve this objective: solar thermal, heat pumps, geothermal and biomass.

The implementation of district heating networks will also contribute to the achievement of renewable heat targets (in particular for biomass and geothermal energy).

The development of each sector has been considered in the light of the technical and economic potential.

In PACEit amounts to 7 723 GWh for biomass and 5 385 GWh for co-generated biomass.^{135 136} In addition, with regard to **biomass**, impacts on air quality, availability and sustainability have also been taken into account. The potential has been assessed according to the hierarchy of plant resources (see next section). Significant progress is envisaged for **heat pumps**. The following graph gives an indicative distribution of the target between aerothermal heat pumps and geothermal heat pumps for a total of 2 037 GWh. This development, although significant, remains below the theoretical technical potentials assessed in various studies.¹³⁷

¹³⁵Without accounting for biogas injected into the grid

¹³⁶Due to the methodological changes already mentioned in the context of renewable electricity, the PWECE projections divide biomass and cogeneration potentials differently, bringing the projections to 2030 for biomass for heat to 6 508 GWh and for co-generated biomass to 8 586 GWh.

¹³⁷See, in particular, for aerothermal heat pumps, a recent study by Deplasse (2021) 'Determination of the potential of aerothermal heat pumps in the Walloon residential and tertiary sectors', which assesses their net technical potential. For geothermal heat pumps, a shallow geothermal potential study identifies potentials in favourable and unfavourable scenarios for 2030 and 2050, and a series of projects have been submitted under the geothermal call which represent an interesting potential. Furthermore, due to the methodological changes already mentioned in the context of renewable electricity, the PWECE projections estimate the potential of heat pumps at 2 194 GWh.

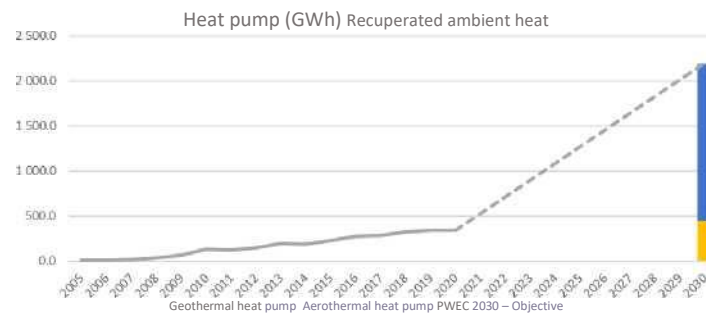


Figure 15: Aerothermal and geothermal heat pump target for 2030, put into perspective with historical evolution 2005 2020

For **solar thermal**, PACE takes into account a potential of 212 GWh, given that a Deplasse study¹³⁸ identifies a net potential (taking into account non-economic constraints) for rooftop solar thermal in 2030 of 683 GWh (80 % of which in the residential sector).

For **geothermal energy (deep and mining)**, in addition to the already existing projects, the objective of 251 GWh in PACE envisages the realisation of several double deep geothermal energy by 2030 as well as mining geothermal projects, in particular as part of the recovery plan. ¹³⁹

These efforts make it possible to achieve a share of renewable heat in gross final heat consumption of around one third in 2030 (compared to 14 % in 2020).

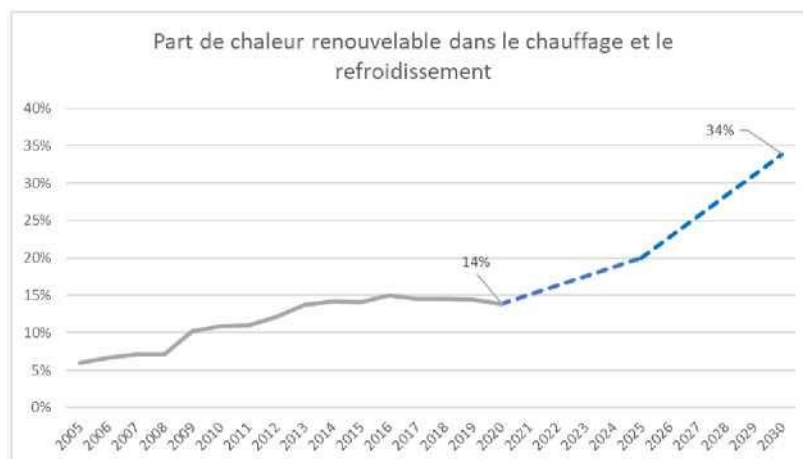


Figure 16: Change in the share of renewable heat, put into perspective with historical developments 2005-2020

¹³⁸Deplasse (2021), 'Determination of solar thermal potential in Wallonia'. Pwec projections take into account the potential of 125 GWh for solar thermal.

¹³⁹Pwec projections vary very slightly at 255 GWh.

The share of renewable energy in the heating and cooling sector would therefore increase by at least 1.3 percentage points as an annual average between 2020 and 2030 and would therefore meet the indicative annual increase target of Directive 2018/2001¹⁴⁰.

Brussels Capital Region

For the intra-muros target, the following evolution is expected by 2030:

Unit: G Wh	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
E-SER WAM	268,16	303,60	335,97	339,85	346,11	353,83	367,07	377,99	390,65	404,18	419,69
Solar PV	135,99	162,43	190,40	203,48	218,60	234,85	252,32	271,11	291,32	312,07	334,48
Municipal waste	117,65	130,82	135,02	125,82	116,96	108,43	100,23	92,35	84,81	77,59	70,69
Biogas	14,24	10,30	10,30	10,30	10,30	10,30	14,52	14,52	14,52	14,52	14,52
Liquid fuels	0,27	0,05	0,25	0,25	0,25	0,25	—	—	—	—	—
Wind	0,0040	0,0037	0,0037	0,0037	0,0037	0,0037	0,0037	0,0037	0,0037	0,0037	0,0037
C & f SER Wam	139,32	144,22	124,42	133,92	133,77	137,74	147,02	150,92	155,33	160,25	165,72
Heat pumps	21,99	19,05	23,17	25,89	28,93	32,33	36,12	40,36	45,10	50,40	56,32
Solar Thermal	25,12	22,97	24,04	24,02	24,00	23,98	23,96	23,95	23,93	23,91	23,89
Municipal waste	0,91	4,29	0,85	0,82	0,79	0,51	0,49	0,47	0,45	0,43	0,41
Biogas	19,65	32,97	45,25	45,25	45,25	45,25	51,50	51,50	51,50	51,50	51,50
Solid fuels	71,09	64,82	27,75	34,64	33,67	34,60	34,43	34,13	33,83	33,49	33,09
Liquid fuels	0,55	0,10	3,37	3,30	1,14	1,07	0,52	0,52	0,52	0,52	0,52
Total	407,47	447,81	460,39	473,77	479,88	491,57	514,09	528,91	545,98	564,42	585,42

Table 8. Expected trend in the use of renewable energy in the regional territory between 2021 and 2030: E-SER & c & f SER.
(Source: Brussels Environment)

Figure 17: Projection of the trend in the use of renewable energy in the Region between 2021 and 2030. (Source: Brussels Environment)

There is not yet an estimate of hydrogen production in the BCR.

- iii. *Contributions from renewable energy technologies that the Member State plans to make to the overall and sectoral renewable energy trajectories between 2021 and 2030, including the projected gross final energy consumption per technology and sector in Mtoe and the planned installed capacity (broken down between new capacity and electricity renewal) by technology and sector in MW.*

The detailed and quantified policies and measures requested by the European Commission are detailed below and in section 3.1.2.

¹⁴⁰Article 23 of Directive 2018/2001 on the promotion of the use of energy from renewable sources stipulates that each Member State shall endeavour to increase the share of renewable energy in this sector to 1,3 percentage points (or alternatively 1,1 percentage points for Member States for which recovered waste heat and cold is not used), as an indication. This objective could become binding in future texts under negotiation.

Federal State

Hydrogen

Belgium supports the need to accelerate the energy transition and the role that hydrogen can play in decarbonising hard-to-electrify sectors. Given the high demographic and geographical constraints, as well as the presence of clusters of energy-intensive industries, the RFNBO targets imposed in RED III for industry and transport are extremely difficult for Belgium and even seem unachievable. These binding RFNBO sub-targets and other binding sub-targets (such as for heating and cooling) do not seem consistent with the cost-effective achievement of our climate targets. This is certainly the case as these targets are already to be achieved by 2030. Despite these challenges, Belgium supports RED III and will constructively contribute to European objectives.

To become more independent and diversify our energy imports, we need to accelerate imports of renewable and climate-neutral hydrogen. This is essential to support our industrial activities and sustain employment, including in our ports. Our ports represent an important energy demand and also play a role in the provision of sustainable materials for the energy transition.

The recovery plan will seek to accelerate the development of a hydrogen backbone between Belgian ports and Belgian industrial zones, and up to Germany. The first focus is on transport to/from the main industrial hubs in Flanders (Antwerp, Ghent), Wallonia (Hainaut, Liège) and around Brussels.

A Hydrogen Industry Development Plan will be developed in collaboration with industry.

Offshore wind energy capacity

Calendar	Objective
Offshore capacity	
2020	2 261 MW of offshore wind energy is operational in the Eastern area.
2023	Development of EDEN-2000 studies.

2023-2024	Preliminary studies in the context of the tendering procedure.
Q4 2024	Publication of tender documents Zone 1 Princes Elizabeth Zone (ZPE), maximum capacity of 700 MW.
Q3 2025	Deadline for submission of one month followed by an evaluation.
Q4 2025	Announcement of the winner of the tender Zone 1 ZPE.
2026	Tender for the implementation of Zones 2 and 3 ZPE with a maximum total capacity of 2 800 MW.
Q2 2028	Modular Offshore Network II (Princes Elizabeth Island) is ready for the first connection.
Q4 2028	The first wind turbines in Zone 1 ZPE are operational.
2030	The first wind turbines Zones 2 and 3 ZPE are operational.
2030	Total offshore wind capacity from 5,5 to 5.8 GW.
Return to service of the eastern zone	
2034-2038	Dismantling of the first operational wind farms since 2009.
Item 2038	Dismantling of new wind farms.
2023	Prepare a study on energy replenishment in the Eastern zone.
<i>Not defined</i>	Drawing up the road map for repowering energy in the eastern zone.
<i>Not defined</i>	Explore and develop potential increases in renewable capacity in the North Sea, such as floating solar energy, interconnections and an offshore grid in the North Sea.

Table 29: Summary table of offshore capacity trajectory

In 2020, the three most recent offshore wind farms in the Eastern area were built, reaching a capacity of 2 261 MW.

For the development of the Princess Elisabeth area, a tendering system will be used, for which the regulatory basis will be developed. In order to make it easier for tenderers to carry out this invitation to tender, to keep the LCoE as low as possible and to create a level playing field, the Federal Public Service Economy plans to carry out preliminary studies.

To assist the FPS Economy in carrying out the preliminary studies mentioned above, International Marine and Dredging Consultants (IMDC) has been appointed as coordinator. The preliminary studies will run until mid-2024.

Given that part of the Princess Elisabeth area is located in Natura 2000, studies are also carried out by the IRSNB to determine the impact of wind farms on this nature reserve, the so-called EDEN-2000 studies. The results of the EDEN-2000 studies will be published in the course of 2023.

The first call for tenders is expected to be launched in the fourth quarter of 2024, allowing the first 700 MW wind farm to be operational in the fourth quarter of 2028. The second call for tenders is expected to be implemented in 2026, with an additional capacity of 2 800 MW by 2030.

By 2030, the contribution of offshore wind to the EU renewable production mix will be 5.8 GW. The potential for regional cooperation in the context of the existing North Seas Energy Cooperation (NSEC), the Modular Offshore Grid (MOG) or other collaborations. Belgium will join its neighbours in

bilateral and regional partnerships for the development of joint offshore energy production projects, in particular under the NSEC.

Return to service of the eastern zone

The first offshore wind farm has generated electricity since 2009 and will be decommissioned between 2034 and 2038. Other wind farms will also be decommissioned in the following years. This will automatically lead to a temporary reduction in green energy production. In order to minimise this period and, more generally, to draw up a roadmap for repowering, DG Energy has launched a call for tenders for a repowering study, which will carry out a legal, economic and technical analysis in order to identify opportunities and gaps, with the aim, inter alia, of minimising the 'loss of renewable energy' due to the period between dismantling and repowering.

Apart from the repowering study, other potential increases are also examined (see Floating solar). Interconnections with other countries and the development of an offshore grid in the North Sea are also elements under consideration.

Hydrogen

The federal government is responsible for regulating hydrogen production. A task force will be set up to encourage sectors and companies to make themselves known as hydrogen buyers.

Flemish Region

See 2.1.2.ii.

Region Walloon

See 2.1.2.ii.

Brussels Capital Region

See 2.1.2.ii.

- iv. *Estimated trajectories for bioenergy demand, broken down into heat, electricity and transport, and biomass supply by raw material and origin, distinguishing between domestic production and imports*

Flemish Region

See 4.2.2. ii.

Region Walloon

The production of heat and electricity from biomass, as referred to in point 'ii. Sectoral and

technology-specific objectives' above are derived from both solid biomass and biogas.

Forest resources

In a *business as usual* scenario, the latest simulations of predictions of the development of Walloon forest resources thus predict an increase in the volume on foot¹⁴¹ and hence a maintenance of the carbon sink function of our forests. According to the estimates proposed by ValBiom¹⁴², all local sources of supply totals 7.806 GWh from wood energy, broken down as follows by material:

GWh	Primary energy available in 2030
Fuel wood	1.943
Forest wafers	74
Pellets	2.342
Timber from road-edges	75
Wood waste type B	925
Black liquor	2.447
TOTAL	7.806

Table 30: Local forest resources (2030)

As regards imports, it should be noted that the closure of Awirs (fed from 100 % imported pellets) allows imports to be reduced by around 800 GWh. On the other hand, for the most part heat production, relatively limited growth in wood-energy imports is expected.

Agrofuel resources

An increase in areas under miscanthus, short rotation coppice and similar practices, which is higher than the recent trend, is considered on the basis of favourable and incentive conditions. 1.500 ha are considered available for production in 2030.

Biomethanisable resources¹⁴³

According to ValBiom, the local realistic field (theoretical potential to which a mobilisation coefficient is applied, which takes account of a technical, agronomic and environmental reality) is in the order of **7.656 GWh**. The types of material have been grouped into broad categories (biogas of CET, crop residues, manure, sewage treatment plant, etc.)

The realistic available deposit makes it possible to reach assumptions considered in this plan for cogeneration, heat alone and transport applications. However, these additional potentials can only be exploited by supporting the sector by various mechanisms, described in particular in Chapter 3.2. Particular attention will be paid to ensuring that dedicated crops do not compete with food crops.

Brussels Capital Region

¹⁴¹J. Perin et al., 2019. 'The Walloon Forest in 2040'. Prediction of the evolution of forest resources using the SIMREG model applied to the data from the permanent inventory of Walloon forest resources.

¹⁴²Methodological note on the contribution of bioenergy to the ECAP/NECP objectives (August 2019). Note: although the Walloon 1st wood processing industries also source raw material outside the Belgian borders, the co-products of these activities (black liquor, pellets, etc.) are considered local supplies.

The¹⁴³ exercise was carried out on the basis of data from:

'Overview of Biomethanisation in Wallonia', 2018 edition (figures 2017).

'Potential for injectable biomethane in Belgium', 2019, the part of which on the deposits in Wallonia is based on the 'Cadastre de la biomass wallonne durable – 2015, updated in 2019' (latest update: 2020).

See 2.1.2.ii.

- v. *Where applicable, other national trajectories and targets, including long-term or sectoral ones (such as the share of renewable energy in heat networks, the use of renewable energy in buildings, the amount of renewable energy produced by cities, renewable energy communities and renewable self-consumers, energy from sludge after waste water treatment*

2.2. Energy efficiency dimension

1. The elements listed in Article 4(b).

Art. 4 (b) (1) the indicative national energy efficiency contribution, as mentioned in the political agreement on the revision of the Energy Efficiency Directive as part of the Fit-For-55 package, to the achievement of the Union's binding energy efficiency target shall be at least 11.7 % in 2030 compared to the projections of the 2020 Reference Scenario, so that the Union's final energy consumption does not exceed 763 Mtoe. Member States shall endeavour to collectively contribute to the indicative Union primary energy consumption target of no more than 992,5 Mtoe in 2030.

The Belgian contribution to the binding European target will be the sum of the contributions of the different entities.

According to projections (WAM scenario), primary energy consumption in 2030 will be 36,5 Mtoe and final energy consumption of 29,9 Mtoe. Compared to the 2020 reference scenario, which projects primary energy consumption of 38,3 Mtoe in 2030 and final energy consumption of 33,1 Mtoe in 2030, this means an energy saving of 1,8 Mtoe or 4.7 % on primary energy consumption compared to the 2020 reference scenario in 2030 and converted into a saving of 3,1 Mtoe or 9.5 % in final consumption compared to the 2020 baseline in 2030.

Primary and final energy consumption <i>ktoe</i>								
	Eurostat (June 2023)					WAM scenario		Formula Annex I (2030)
	2005	2010	2015	2020	2021	2025	2030	
Primary energy consumption	51.801	53.622	45.952	44.206	49.073	42.930	36.522 (-4.7 %)	33.769 (-11.9 %)
Final energy consumption	35.358	36.809	34.550	32.005	34.504	33.722	29.934 (-9.5 %)	28.783 (-13 %)

Table 31: Primary and final energy consumption

Source: 2020-2021: Eurostat; 2022-2030: compilation of entity projections

Note 1: Final energy consumption (FEC) includes international aviation and excludes ambient heat. Consumption of blast furnaces are not included.

Primary energy consumption (PEC) is gross inland consumption minus non-energy consumption and ambient heat

Note 2: The primary consumption of natural gas in the Belgian power park has been quantified by the Federal Planning Bureau on the basis of the "National Trends" study of TYNDP 2020, prepared by ENTSOE and modelled in Artelys Crystal Supergrid. Capacity, final energy consumption and fuel prices have been adjusted in the model according to Belgium's WAM scenario.

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
ECF (GWh)	372215	401277	405245	400931	396494	392191	384378	376565	368073	358520	348135
<i>Flemish Region</i>			<i>265338</i>	<i>263385</i>	<i>261670</i>	<i>260283</i>	<i>255258</i>	<i>250328</i>	<i>244900</i>	<i>238418</i>	<i>231428</i>

<i>Region Walloon</i>	<i>121189</i>	<i>118972</i>	<i>116697</i>	<i>114540</i>	<i>112116</i>	<i>109693</i>	<i>107270</i>	<i>104847</i>	<i>102425</i>
<i>Brussels Capital Region</i>	<i>18717</i>	<i>18573</i>	<i>18127</i>	<i>17368</i>	<i>17004</i>	<i>16544</i>	<i>15903</i>	<i>15254</i>	<i>14281</i>

Table 32: Compilation of entity-specific forecasts

Source: 2020-2021: Eurostat; 2022-2030: compilation of entity projections

Final energy consumption (FEC) includes international aviation, excluding ambient heat. The consumption of blast furnaces shall not be counted.

If, under the ambition guarantee scheme described in the Energy Efficiency Directive (recast), additional obligations are imposed on Belgium to increase its contribution to the 11.9 % (primary energy consumption) and 13 % (final energy consumption) resulting from the formula in Annex I of the Energy Efficiency Directive, Belgium will take the necessary measures, through additional agreements in the negotiations on burden-sharing.

NECP 2023 — WAM	ktoe	2005	2010	2015	2019	2020	2021	2025	2030
Primary energy consumption (2)		51801	53622	45952	48718	44206	49073	42930	36522
Final energy consumption (1)		35358	36809	34550	34180	32005	34504	33722	29934
Industry		10571	10954	10572	10301	9995	10579	11259	11179
Residential		9144	9609	8198	7786	7774	8435	7595	6444
Higher education/Agriculture		5693	5818	5344	5496	5255	5383	4731	4065
Transport		9884	10331	10357	10523	8911	10043	10137	8247

Table 33: Energy consumption PNEC 2023 WAM in ktoe

(1) With international aviation excluding ambient heat, and excluding blast furnace consumption

(2) Gross inland consumption excluding uses not energy and ambient energy.

PNEC 2023 - WAM	GWh	2005	2010	2015	2019	2020	2021	2025	2030
Primary energy consumption (2)		602444	623626	534417	566596	514111	570719	490059	424751
Final energy consumption (1)		411213	428086	401818	397518	372215	401277	392191	348135
Industry		122943	127397	122948	119805	116241	123030	130942	130009
Residential		106350	111748	95342	90552	90412	98101	88329	74939
Higher education/Farmers		66210	67659	62148	63918	61110	62603	55027	47279
Transport		114951	120150	120449	122379	103630	116805	117897	95912

Table 34: Energy consumption PNEC 2023 WAM in GWh

(1) With international aviation, excluding ambient heat and excluding blast furnace consumption

(2) Gross inland consumption excluding non-energy uses and ambient energy.

The sectors that contribute most to the downward trend (both in absolute and relative terms) are residential and tertiary, as well as transport. In 2030, final energy consumption in these sectors fell from 18 % (transport sector) to 24 % (residential and tertiary sectors) compared to 2021. On the other hand, policies and measures envisaged in industry, coupled with the sector's business prospects, do not reduce the sector's final energy consumption.

The Belgian indicative final energy consumption trajectory (FEC), based on the compilation of entity projections, is as follows:

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
FEC	32.0	34.5	34.8	34.5	34.1	33.7	33.1	32.4	31.6	30.8	29.9

Table 35: Compilation Belgian indicative net for final energy consumption Source: 2020-2021: Eurostat; 2022-2030: compilation of entity projections
Note: Final energy consumption (FEC) includes international aviation, excluding ambient heat. Blast furnace consumption is not included.

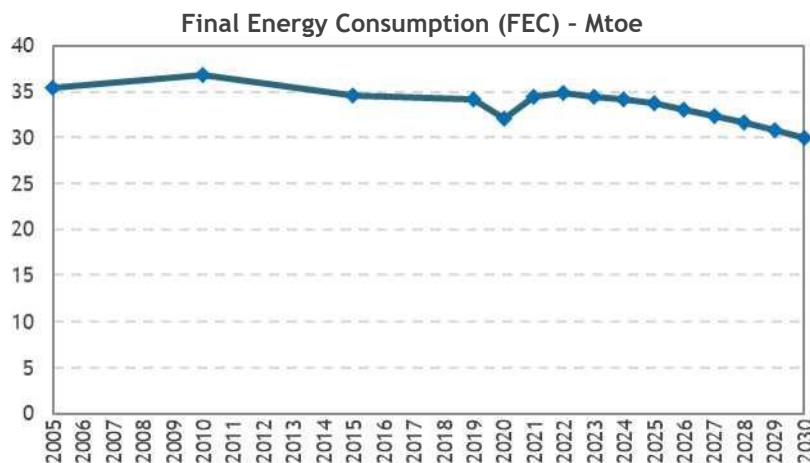


Figure 18: Final energy consumption in mtoe

A major contribution to the Belgian target will have to come from the implementation of Article 8 of the EED Directive. Under Article 8 (former Article 7), Belgium had to comply with an annual energy saving of 0.8 %, which corresponded to a cumulative energy saving of 185.8 TWh in 2021-2030.

Following the revision of the EED in Fit for 55, the annual energy saving target is increased through a mechanism:

- 0,8 % in 2021-2023
- 1,3 % in 2024-2025
- 1,5 % in 2026-2027
- 1,9 % in 2028-2030

In order to implement Article 8 of the revised EED, Belgium needs to save 267.65 TWh of energy, cumulated over the period 2021-2030. Based on the bottom-up contributions of each entity, the measures in this plan will contribute approximately 156.762 TWh.

The contribution of the different entities to this objective is as follows:

- Federal State: 1.209 TWh
- Flemish Region: 91 845 TWh
- Walloon Region: 54 960 TWh
- Brussels-Capital Region: 8 747 TWh

Belgium will take the necessary measures, through additional agreements during the burden-sharing negotiations, to achieve the energy savings required under Article 8.

The federated entities participate in the Belgian contribution through policies and measures and the federal state, within its powers, participates in the Belgian contribution through accompanying measures.

Federal State

As regards energy poverty, the federal level is only responsible for pricing policy. There is therefore no federal energy savings target in this context.

Flemish Region

This obligation applies only at Belgian level and is included in the common part of the Belgian National Energy and Climate Plan after compilation of all regional projections.

Region Walloon

Indicative energy efficiency contribution

The target envisaged within PACE is a 29 % reduction in final energy consumption compared to 2005, reaching 105 TWh for all sectors. This objective must primarily be achieved by means of energy efficiency measures and must not hinder the objectives of sustaining and developing activity, or even relocating and reindustrialising the Walloon territory.

Bringing the accounting of heat from cogeneration into line with the European methodology (IEA/Eurostat) gives a total of 104.6 TWh consistent with the PACE. Given that the figures for the reference year 2005 have also been corrected by this alignment, the final percentage now stands at 30 %.

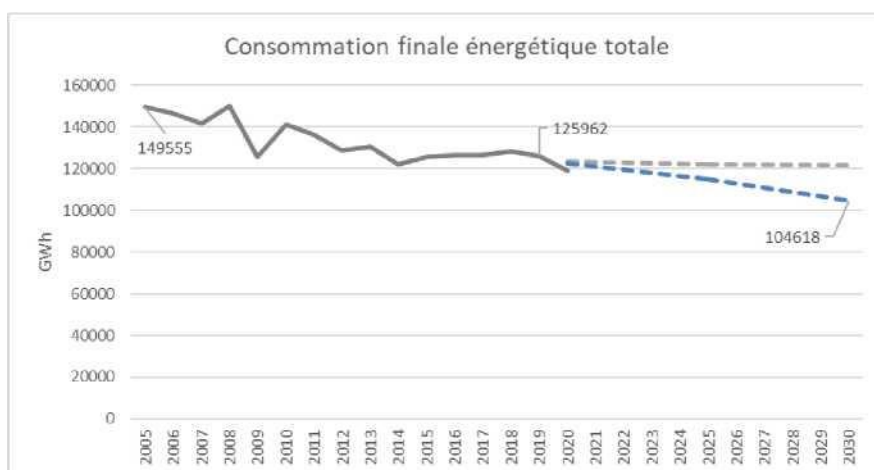


Figure 19: Evolution of total final energy consumption in Wallonia, put in perspective with historical developments 2005-2020, and a reference scenario with unchanged policy

The following table sets out the 2021-2030 linear indicative trajectory for final energy consumption.

	2021	2022	2023	2024	2025	2026	(NP)	2028	2029	2030
Consommation finale énergie 2021-2030 (TWh)	121	119	117	115	114	112	110	108	106	105

Table 2: Indicative 2021-2030 final energy consumption trajectory

Each sector contributes to the gains in final energy consumption by:

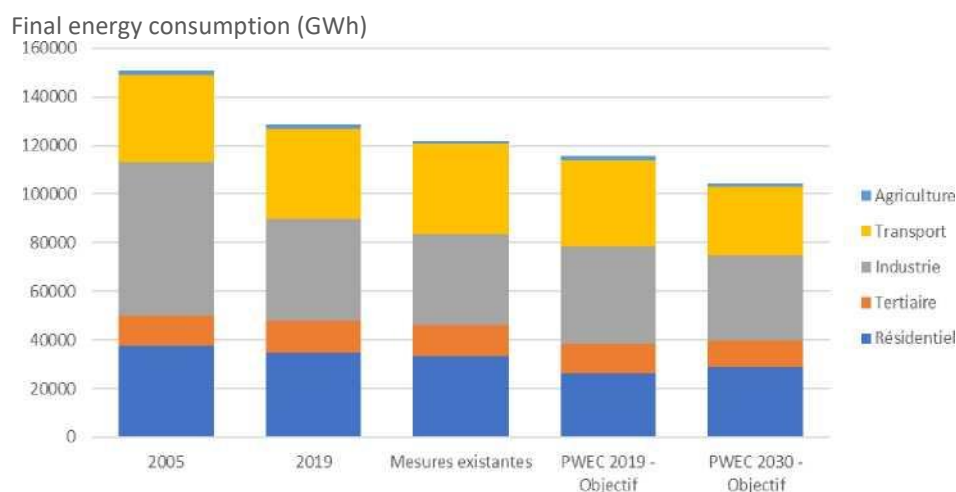


Figure 20: Evolution of final energy consumption by sector in Wallonia, put in perspective with 2005 and 2019, a scenario with existing measures and the 2019 PWEC targets

Between 2020 and 2030, measures related to building renovation, behavioural changes and the energy performance of new buildings have a significant impact on energy consumption in the residential and tertiary sectors.

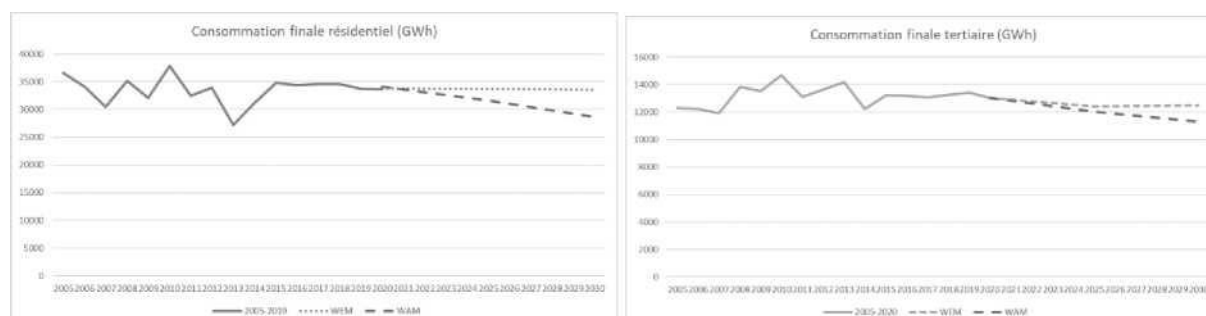


Figure 21: Targets for the reduction of final energy consumption in the residential and tertiary sectors, put into perspective with historical developments 2005-2020 and a scenario with existing measures

In the transport sector, Wallonia aims to make ambitious efforts that will affect final consumption, notably through the implementation of its FAST programme.

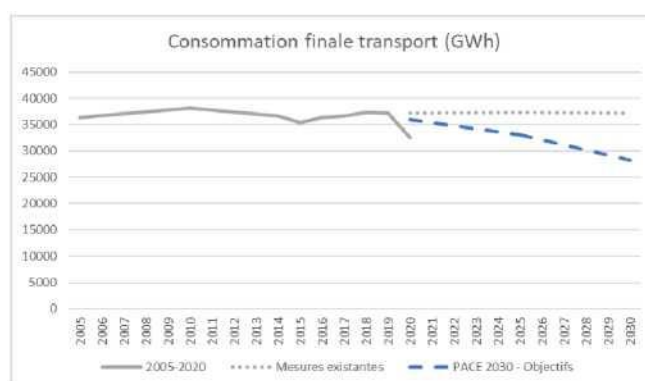


Figure 22: Target to reduce final energy consumption in transport, seen in the light of historical developments 2005-2020 and a scenario with existing measures

Cumulative energy savings 2021-2030 under Article 7 of the Energy Efficiency Directive

Directive (EU) 2018/2002 extended and strengthened the obligation to establish an annual energy saving scheme established in 2012 by the Energy Efficiency Directive.

Specifically, between 1st January 2021 and 31 December 2030, each Member State must achieve a cumulative energy savings target that is directly proportional to its annual final consumption. In principle, this obligation will then be renewed every 10 years¹⁴⁴.

For the time being, the annual savings rate is set at 0.8 % per year, but it could rise to 1.5 % of the 2024 in the next revision of the Directive, which is currently being negotiated in 2022 as part of the European Fit for 55 package.

Basic target calculation (absolute min)

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Cumulativ
EE	0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	0.8 %
		0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	7.2 %
			0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	6.4 %
				0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	5.6 %
					0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	4.8 %
						0.8 %	0.8 %	0.8 %	0.8 %	0.8 %	4.0 %
							0.8 %	0.8 %	0.8 %	0.8 %	3.2 %
								0.8 %	0.8 %	0.8 %	2.4 %
									0.8 %	0.8 %	1.6 %
										0.8 %	0.8 %
Active	0.8 %	1.6 %	2.4 %	3.2 %	4.0 %	4.8 %	5.6 %	6.4 %	7.2 %	8.0 %	44.0 %

Table 36: Calculation of the projection of the cumulative energy efficiency target in accordance with Article 7 of the Energy Efficiency Directive

The calculation is based on a supposedly linear annual saving, but it is the value of the cumulative target over the period that is binding, as the real additional economy can obviously fluctuate from year to year.

Another change brought about by the future revision would be the mandatory use of specific measures to reduce energy poverty, as well as the exclusion of energy savings on fossil fuels.

With an average final energy consumption in Wallonia of 127.2 TWh¹⁴⁵, **this obligation translates into the following 2021-2030 target for Wallonia:**

- An additional energy saving of 1 018 GWh (0.8 %) each year between 2021 and 2030, resulting in an overall impact in 2030 estimated at a reduction of 10 177 GWh compared to a scenario without this obligation.

¹⁴⁴While Member States have certain flexibilities in implementing this obligation mechanism (choice between a white certificate scheme, alternative government measures, or a mix of the two), the rules for setting the target and the rules for accounting savings to achieve it are strengthened.

¹⁴⁵Average of Walloon final energy consumption of 126.6 TWh in 2016, 126.6 TWh in 2017, and 128.4 TWh in 2018

Obligation art7 EED : réduire consommation finale de 0,8%/an

Maintenir l'impact sur toute la période (durée de vie)

2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
1.018	1.018	1.018	1.018	1.018	1.018	1.018	1.018	1.018	1.018
	1.018	1.018	1.018	1.018	1.018	1.018	1.018	1.018	1.018
		1.018	1.018	1.018	1.018	1.018	1.018	1.018	1.018
			1.018	1.018	1.018	1.018	1.018	1.018	1.018
				1.018	1.018	1.018	1.018	1.018	1.018
					1.018	1.018	1.018	1.018	1.018
						1.018	1.018	1.018	1.018
							1.018	1.018	1.018
								1.018	1.018
									1.018

Effort annuel indicatif

Impact global en 2030 : 10177 GWh

2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
1.018	2.035	3.053	4.071	5.088	6.106	7.124	8.141	9.159	10.177

Impact global (GWh)

Cumul des impacts contraignant

55.971

Cumul des impacts annuels de 2021 à 2030 (GWhcum) :

Experience over the previous period has shown the difficulty of the cumulative challenge, reinforcing the need to swiftly implement the measures required and to put in place the necessary governance to correct any observed drift as soon as possible.

- *Current European taxation: area to be renovated or equivalent energy savings 2020/2030*

That is why Article 5 of Directive 2012/27/EU has imposed since 2014 an exemplary renovation obligation of 3 % each year of the central government building¹⁴⁶stock.

1. An inventory of their real estate.
2. Monitoring the annual consumption of these buildings.
3. The benchmark of benefits towards the cost-optimal benchmark.
4. The establishment of a targeted action plan to bring at least an additional 3 % of heritage to the baseline level each year.

146In Belgium, the concept of ‘central government’ refers to the federal state and federated entities. For the Walloon Region, the buildings covered by Article 5 of the Energy Efficiency Directive are therefore the buildings of the Walloon regional administration.

obligation of their buildings were as follows:

- Membership of the institution concerned.
- Occupation by the central government concerned.
- Presence of a heating or cooling system.
- Total useful floor area greater than 250 m².
- Energy performance not in line with the minimum regional requirements (set in 2013 at 286 kWh/m² occupied).

Together, between 2014 and 2020, the Walloon Region, the Fédération Wallonie Bruxelles and the Deutsche Gemeinschaft saved around 650.000 m² of buildings located on Walloon territory almost 25 GWh of primary energy or 15 GWh of final energy, i.e. a linear improvement of about 2 % per year in the final energy consumption of their building stock. In 2020 there is still around 20 % of their building stock that does not comply with the cost-optimal criterion set in 2013.

- *Reinforcement of European taxes*

The revision of the Energy Efficiency Directive currently being negotiated at European level as part of the Fit for 55 framework may entail a very strong strengthening of the exemplary role of public authorities, in particular:

1. Extension of the renovation obligation to buildings of all public authorities, irrespective of the level (or, for Wallonia, an estimated area of more than 20 times higher).
2. Replacement of the cost-optimal criterion by the criterion of quasi-energy neutrality (for Wallonia an estimated effort of more than 3 times higher).
3. Addition of an exemplary reduction¹⁴⁷ of final consumption by all public authorities for all uses, going well beyond the renovation of their buildings.

- *Reinforcement of the measure by 2030*

In order to achieve its 2030 and 2050 targets (in particular the energy neutrality aimed at by 2040 in the renovation strategy for all buildings in the tertiary sector), Wallonia will therefore extend and strengthen the exemplary nature of its public buildings, through the measures described in Chapter 3.

For Wallonia, the estimated expected impact of the revision of this Directive¹⁴⁸ would lead to an overall estimated final energy saving of 1.190 GWh between 2019 and 2030 and distributed as follows:

1. 62 GWh for central governments;
2. 247 GWh for local authorities;
3. 501 GWh for school buildings;
4. 245 GWh for hospital and similar buildings;

¹⁴⁷According to the proposal currently under negotiation, the annual rate of reduction of all final consumption by all public authorities could be 1.7 % per year.

The¹⁴⁸ impact is assessed:

- Based on an estimated minimum residual final consumption of 80 kWh/m²/year which corresponds to the concept of energy neutrality
- Based on an obligation of energy neutrality in 2030 for central governments, in 2035 for local authorities and education and in 2040 for health and other public areas
- On the basis of the timetable for implementation by sub-sector provided for in the Walloon renovation strategy
- On the basis of the same surface area as today, i.e. 27 400 000 m² of public buildings
- Based on an estimated initial final consumption of around 220 kWh/m²/year in 2019

5. 133 GWh for buildings in the remaining subsectors.

Brussels Capital Region

In its Energy Efficiency Directive, the European Union has the following objectives:

- Energy savings in central government buildings (Article 5): the RBC must renovate annually 3 % of the total floor area of buildings owned and/or occupied by regional authorities to meet at least the minimum energy performance requirements, or achieve equivalent energy savings in the same buildings. The savings generated are estimated at 595 MWh of final energy. These savings should be achieved through the combination of PLAGE and Rénoclick programmes.
- End-use energy savings (Article 7): from 2021 to 2030, the CBR is expected to achieve annual savings of 0.8 % of its final energy consumption compared to the 2016-2018 average. The effort required in the Brussels Region to fulfil the Article 7 obligation has been estimated at an additional annual energy saving of 159 GWh and a cumulative energy saving of 2021 to 2 030 GWh. This objective will be assumed to be achieved by a combination of measures already planned.

II. The indicative milestones for 2030, 2040 and 2050, the measurable progress indicators established at national level, an evidence-based estimate of expected energy savings and wider benefits, as well as their contributions to the Union's energy efficiency targets as set out in the roadmaps identified in the long-term renovation strategies for the national stock of public and private residential and non-residential buildings in accordance with Article 2a of Directive 2010/31/EU.

The Belgian building stock will need to undergo major renovation to move towards a low-carbon society by 2050. The public sector is a key driver in promoting the transition to more efficient buildings and encouraging changes in the energy consumption behaviour of citizens and businesses. Public bodies at federal and regional level should be exemplary in terms of energy efficiency.

The entities' different long-term renovation strategies specifically aim at reducing energy consumption and greenhouse gas emissions from heating Belgian buildings. Deep renovation and the shift towards sustainable heating/cooling are important pillars for all three regions and the federal government. They are therefore strongly committed to renovations through standardisation, financial support (bonuses, taxes and loans), guidance and relief, and finally the communication to increase the renovation rate in Belgium and promote energy efficiency.

Federal State

For the buildings of the federal government, regional plans should be examined in order to further develop.

Flemish Region

Flanders targets a carbon-neutral non-residential building stock for heating, domestic hot water, cooling and lighting by 2050, with the government leading by example.

The roadmap proposed in the long-term renovation strategy shall include indicative milestones for 2030, 2040

and 2050 and shall specify how they contribute to the achievement of the Union's energy efficiency targets in accordance with Directive 2012/27/EU. See Flemish Long Term Renovation Strategy.

Region Walloon

The objectives set out here are linked to the Walloon Strategy for the long-term energy renovation of buildings (LTRS)¹⁴⁹.

Long-term objectives of the renovation strategy

The objectives of the LTSR are:

- **For residential:** aim in 2050 towards an ¹⁵⁰averaged decarbonised EPB label¹⁵¹ for the entire housing stock and prioritise deep renovation of the worst-performing dwellings, while ensuring that any renovation project is part of a comprehensive reflection consistent with the region's objectives, structured in the timetable for implementing the renovation strategy.
- **For the tertiary sector:** move in 2040 towards an energy-efficient and carbon-neutral tertiary building stock¹⁵² for heating, domestic hot water, cooling and lighting.

The analysis of the results of the COZEB-extension study identified intervention priorities with a view to achieving this objective. This study assessed all cost-effective measures for the different building typologies. The proposed priorities correspond to the most cost-effective measures, namely the deep renovation of the worst-performing dwellings (insulation of the envelope, with priority on roofs, without neglecting replacements of end-of-life systems). This renovation must, however, be carried out by ensuring that any renovation project is part of a comprehensive reflection that is consistent with the region's objectives.

At the same time, the Region will ensure that renovation is supported at the pivotal moments in the use of the buildings:

- Purchase/sale, change of tenant or owner, works other than energy efficiency improvements.
- Replacement of end-of-life systems.
- Installation of renewable energy systems during changes or renovations of roofs.

Medium-term objectives of the renovation strategy

If Wallonia aims to achieve carbon neutrality by 2050 at the latest, the intermediate step of reducing greenhouse gas (GHG) emissions by 55 % compared to 1990 is set for 2030. The study of possible scenarios for a low-carbon transition of the Region¹⁵³ reveals that the annual reductions required to reach the overall target of -55 % in 2030 compared to 1990 correspond to a reduction of 3.7 % (% of 1990) per year, i.e. annual reductions 10 times higher than the historical average¹⁵⁴.

This objective will be achieved through the implementation of the actions described in Chapter 3, and in particular the introduction of a timetable for phased renovation obligations over time. The translation into the legal texts of the requirements laid down in the various timetables will take account of any exceptions for technical and economic impossibility.

With regard to **residential**, a phasing of the renovation rate to be achieved is proposed in the strategy and

¹⁴⁹ VOIR <https://energie.wallonie.be/servlet/Repository/gw-201112-strategie-renovation-2020-rapport-complet-final.pdf?ID=60498>

¹⁵⁰ The ceiling for the specific primary energy consumption of an EPB A label building is 85 kWh in primary energy per m² per year.

¹⁵¹ In line with Action 381, the decarbonised EPB A label can be achieved on average without banning EPB by 2050

¹⁵² Zero annual energy balance with a need for energy from renewable sources

¹⁵³ Carried out by Climact in 2011

¹⁵⁴ It should be noted that this objective has not yet been the subject of a sectoral breakdown. The study of possible scenarios for a low-carbon transition of the Region indicates that the building sector has a very high potential contribution to enable the Region to reduce its emissions.

broken down into periods of 5 years. Such a phase, which is necessary for both owners and renovation companies, makes it possible to achieve the objectives.

For the **tertiary sector**, the strategy also outlines a phased renovation of buildings by category (buildings occupied by central governments, schools, other public offices, private offices and shops) with a view to making them energy-efficient and carbon-neutral by 2050.

In order to support building renovation objectives, particular attention will be paid to the development of a **local construction timber production** chain and to the use of local and bio-based materials.

Brussels Capital Region

On energy, in line with the Climate Order, the BCR commits by 2050 to:

- Reduce the average primary energy consumption of the entire stock of residential buildings located on the territory of the Region to 100 kWh/m²/year;
- Move towards zero emissions¹⁵⁵ for heating, domestic hot water, cooling, lighting, and electricity in the entire tertiary building stock. This objective is operationalised in the Brussels strategy for reducing the environmental impact of existing buildings (or RENOLUTION renovation strategy).

III. Where appropriate, other national targets, including long-term objectives or strategies and sectoral targets, as well as national targets in areas such as energy efficiency in the transport and heating and cooling sectors.

The transition to sustainable heating in the Belgian building stock by 2050 is an integral part of the three regional long-term renovation strategies. To reach the 2050 target, energy consumption in general, and fossil fuels in particular for heating, will need to decrease significantly by 2050. The shift in the transport sector towards low-emission vehicles and the proliferation of low-emission zones will also mean that the use of fossil fuels will have to decrease substantially in the coming years.

Federal State

The federal measures mainly support regional measures, which are described in more detail in point 3.2 (MAP).

Flemish Region

No objectives are applicable.

Region Walloon

¹⁵⁵This concept is defined as: 'very high energy performance, requiring only zero or very low energy consumption, does not produce any on-site greenhouse gas emissions from fossil fuels and does not produce any operational greenhouse gas emissions or a very small quantity, as specified by the Government.'

Industrial and commercial enterprises

Representing more than 1/3 of CO₂ emissions and energy consumption in Wallonia, the commercial industrial and tertiary sectors have a crucial role to play in achieving our energy rationalisation and decarbonisation objectives.

Setting a binding absolute target for these sectors could be counterproductive by incentivising relocation and import without reducing the overall impact. The aim is therefore to reduce the energy and carbon intensity of our economy to ensure it is resilient and competitive in the long term.

In addition to the taxes linked to the European framework (ETS quotas, audit obligations, etc.), a new generation of voluntary agreements with companies, aimed at achieving carbon neutrality by 2050, will be put in place as from 2024. These agreements will concern both HTA and non-ETS companies and are described in Chapter 3.5.

The expected impact of these new agreements, which are strongly geared towards action beyond business as usual, is expected to maintain an improvement in energy intensity of between 1 and 1.5 % per year, as observed in previous generations, which will reduce the overall cost of fuel switching towards a decarbonised economy, through the recovery of waste heat (with a target of activating the waste heat recovery potential of around 850 GWh by 2030, i.e. around 20 % of total potential) and renewable heat (heat pumps, biogas and biomass), but also, and above all, green electricity and e-fuels.

With a coherent set of legislative, incentive and facilitation measures (provision of expertise and simplification of procedures), companies that do not participate in the agreements (usually smaller) should also be able to improve their energy intensity by the same order of magnitude by 11.5 % per year.

Energy performance of new buildings

The new building is dealt with from a normative point of view. Considering that the current level of requirement is Q-ZEN, the requirements will be gradually tightened to target residential and tertiary buildings “ZEN” (Zero Energie) as described in Chapter 3.

Public sector

In anticipation of the entry into force of new European energy efficiency obligations, a possible transposition aiming at an annual reduction of 1.7 % of final consumption by the public sector as a whole, encompassing and superimposed on the exemplary renovation of their buildings, should be anticipated.

The obligation will cover the mandatory introduction of an energy management system (Brussels Plage type, international IPMVP protocol or voluntary agreements similar to industry agreements), which will ensure for all those obliged to:

- Monitoring and annual reporting of all consumption (including all vectors, including renewable self-consumption).
- The establishment of a priority action plan based on an approved audit and an objective of energy neutrality by 2040 for buildings and 2050 for other uses.
- Implementation of these priority actions and reporting on their energy, CO and annual budget impacts

Overall final consumption in the service sector was 13.3 TWh in 2019, of which 4.7 TWh was purely non-market. Some of the 0.53 TWh in transport and communication and the 0.75 TWh in culture and sport classified as mixed merchant will probably have to be added.

Assuming an obligatory final consumption of 5 TWh, this would lead to annual energy savings of around 85 GWh/year. And if this obligation enters into force in 2025, the overall impact could amount to 510 GWh in 2030.

Brussels Capital Region

Energy efficiency targets have not been subdivided into sectors.

2.3. Energy security dimension

Through targeted objectives and policies that promote energy efficiency and ensure increased local renewable energy production, regional targets contribute to enhancing energy security. Energy security is also a competence of the federal government. The text provided under this chapter is therefore the responsibility of the Federal Government.

- i. The elements referred to in Article 4(c).*
- ii. National targets for greater diversification of energy sources and supply from third countries with a view to increasing the resilience of regional and national energy systems.*
- iii. Where applicable, national targets related to the reduction of dependence on energy imports from third countries in order to increase the resilience of regional and national energy systems.*
- iv. National targets related to increasing the flexibility of the national energy system, in particular through the mobilisation of domestic energy sources, demand response and energy storage.*

Energy policy at federal level aims to ensure an uninterrupted supply of these primary sources, not only for their applications in the energy sector itself, but also as raw materials in various industrial processes. In so doing, it aims at a diversified supply in terms of energy sources, origin and route, without, however, setting quantified targets.

Furthermore, in line with the “energy efficiency first” principle, Belgium is actively committed to reducing energy intensity and reducing dependence on foreign supplies of primary energy sources. Thanks to its central position in Western Europe and its highly connected network infrastructure with neighbouring countries, our country is in a unique position. This is true for electricity, natural gas – it should be remembered that only 46 % of Russian natural gas is consumed in Belgium – and oil. Our country is therefore able to channel large quantities of electricity, gas and oil. This is undoubtedly an important asset for its own energy supply. The objectives and measures to be taken in this context are listed in Chapters 2.2 and 3.2.

For both oil and natural gas, Belgium has an open and liquid market in which a large number of domestic and international players operate. Although trade in these two products is highly globalised and the impact of public actors on them is therefore limited, our objective is to create the preconditions for a stable and competitive functioning of the market. Since the beginning of Russia’s aggression against Ukraine, public and private actors have made additional efforts to achieve the objectives set out in the various emergency regulations and sanctions packages at EU level: among others, in particular, the minimum storage obligation for natural gas, the indicative and mandatory demand limitation for natural gas and electricity or the embargo on Russian oil and petroleum products.

In addition, the origin of these different primary energy sources is continuously monitored. Contrary to what recent embargoes and measures might suggest, there has so far been no alarming domination of a particular country of origin. Should this prove to be the case in the future, it should be examined whether public intervention is desirable and necessary.

As regards electricity, Belgium is connected to all its neighbours and further reinforcements are planned in the future (see Chapter 2.4). The balance between imports and exports is monitored and strongly depends on

the availability of production capacity across the region and price signals.

Regulation 2019/943 specifies that a capacity remuneration mechanism can only be introduced if the Member State has a reliability standard. This standard shall indicate the level of security of supply required.

The level of security of supply to be achieved by the capacity remuneration mechanism (CRM) corresponds to this reliability standard, in particular by calibrating demand curves for auctions so that the reliability standard is met.

To calculate the reliability standard, at least the “cost of lost energy (VOLL)” and the “cost to be covered by a new entrant (CONE)” shall be used. European methodologies have been established for this purpose.

Belgium had already adopted a reliability standard, namely a Loss Of Load Expectation (LOLE) of less than 3 hours and a LOLE95 of less than 20 hours (Article 7a of the Electricity Law). Following the publication of the European methodologies, a new calculation was therefore carried out in accordance with these new rules and in accordance with the procedure laid down in Article 7j (7) of the Law on the organisation of the electricity market. The Royal Decree on the determination of the reliability standard and the approval of the values of the cost of lost energy and the cost of a new entrant of 31 August 2021 laid down as follows:

- the LOLE at 3156,
- VOLL at EUR 17 340/MWh,
- the CONE sets and the variable CONE at EUR 45/kW/year and EUR 736,73/MWh respectively (DSR technology being the reference technology).

In accordance with the commitment made under European Commission Decision (EU) 2022/639 of 27 August 2021 on aid scheme SA.54915-2020/C on the introduction of a capacity remuneration mechanism in Belgium (margin number 28), the Belgian competent authorities subsequently updated the one-off estimate of the undistributed energy cost (VoLL) on the basis of a new investigation into willingness to pay, in accordance with the methodology published by ACER^[2]. New values have thus been established for VOLL/CONE/LOLE in accordance with the legal process in the Royal Decree of 4 September 2022^[3] amending the Royal Decree of 31 August 2021:

- the LOLE at 3,
- VOLL at EUR 12 832,48/MWh,
- the CONE sets and the variable CONE at EUR 30/kW/year and EUR 736,73/MWh respectively (DSR technology being the reference technology).

Electricity today accounts for one fifth of Belgium’s total energy demand. However, electrification of the transport, heating and industry sectors is expected to increase the share of electricity in the energy mix.

Belgium also plans a major transformation of the electricity mix between 2023 and 2035, in particular due to the partial shutdown of nuclear power stations (and the extension of 2 nuclear power plants: see below 1.2

156[1] 03_2.pdf (fgov.be)

[2] https://economie.fgov.be/sites/default/files/files/Energy/CRM-NOTE_Eestimate-cout-d-energie-non-distribuee-Belgian-VoLL-10062022-signed.pdf [2] https://economie.fgov.be/sites/default/files/Files/Energy/CRM-Note_Estimation-cout-d-energie-non-distribuee-Zeoir-belge-VoLL-10062022-signed.pdf

[3] Moniteur Belge – Belgian Official Gazette (fgov.be)

(ii) and the increase in the share of renewable energy.

	2024-2025	2029-2030
storage pumping turbinning	1278	1305
large-scale storage (existing and potential)	590	2271
small-scale storage	358	477
DSR potential	2098	2848

Table 3: Evolution of flexible capacity (MW)

Source: Public consultation Ad & Flex 2023¹⁵⁷ and presentation of the update of data following market participants' responses¹⁵⁸

The policy measures to address them cover different dimensions, which are described in Chapter 3 under the headings 'energy efficiency', 'renewable energy', 'security of supply' and 'internal market'.

Finally, Belgium continues to work continuously on fine-tuning and updating the crisis policy for all energy sectors concerned. More specifically, for each energy sector, efforts are being made to further develop operational contingency plans that take into account national, regional, European and international obligations, as well as to pay due attention to security developments. Building on the different emergency plans, the objective is to develop, under the coordination of the NCCN, a single global emergency plan in which spill-over effects between energy sectors are better mapped and specific procedures are developed to address these effects. Finally, participation in stress tests/exercises at national, regional, European and international level is also part of the programme. All this will be done in close consultation with all

¹⁵⁷ Public consultation on the methodology, the basis data and scenarios used for the study regarding the adequacy and flexibility needs of the Belgian power system for the period 2024-2034 and including also the scenario parameters for the "Low Carbon Tender" 2024/25, elia.be, 2023. https://www.elia.be/en/public-consultation/20221028_public-consultation-adequacy-study-2022-2032

¹⁵⁸ WG Adequacy #16, elia.be, 2023. <https://www.elia.be/en/users-group/adequacy-working-group/20230217-meeting-stakeholders>, in particular specifically established centres and agencies (e.g. APETRA- Oil Agency).

2.4. Dimension of the internal energy market

The internal market dimension is a shared competence between the federal state and the regions. Interconnections and transport infrastructure fall under the exclusive competence of the federal state, while other aspects of this dimension, namely energy market design, market integration and flexibility and energy poverty, fall under shared competences.

2.4.1. Electricity Interconnectivity

1. *The level of electricity interconnectivity targeted by the Member State in 2030, taking into account the electricity interconnection target of at least 15 % for 2030, with a strategy that the level from 2021 onwards will be determined in close cooperation with the Member States concerned, taking into account the 10 % interconnection target for 2020 and the following indicators for the urgency of the action:*

1. *wholesale price differences exceeding the indicative threshold of EUR 2/MWh between Member States, regions or bidding zones;*
2. *rated interconnector transmission capacity of less than 30 % of peak load;*
3. *nominal transmission capacity of interconnectors of less than 30 % of installed capacity of production of renewable energy. Any new interconnection is subject to a cost/socio-economic and environmental benefit analysis and can only be implemented if the potential benefits outweigh the costs.*

In recent years, Belgium has invested heavily in strengthening its electricity interconnection with its neighbours. Thus, the maximum import capacity of the Belgian tender area will increase from 5 500 MW to 7 500 MW between 2018 and 2023. This is in line with the Federal Development Plan 2020-2030, approved by the Federal Minister for Energy in April 2019. The Federal Development Plan 2024-2034, which was the subject of a public consultation^{from} 1 November 2022 to 16 January 2023 and scheduled for approval by the Federal Minister for Energy in May 2023, takes a less fixed approach to import and export options. Since flow-based calculations will be used, the import and export capacity will depend on the situation in the rest of the CORE zone and on the load on the internal network. With strong interconnection, the internal network and the networks of neighbouring countries are starting to become constraints rather than the physical constraints of the interconnections themselves.

To better ensure interconnection levels, many projects are foreseen in the Federal Network Development Plan 2024-2034 subject to approval by established procedures:

- Developing the offshore network:
 - “Nautilus”: the interconnection between the UK and the Princess Elisabeth Island on the Belgian side.
 - “TritonLink”: the interconnection between Denmark and Princess Elisabeth on the Belgian side.
- This project is conditional at a time when we write these lines, as there are no 185

a positive cost-benefit analysis at Danish and Belgian level, while it is positive at European level.

- Further development of land interconnections:
 - Strengthening the Lonny axis (FR) – Purchase (BE) – Gramme (BE)
 - Reinforcing the Van Eyck (BE) – Mergbracht (NL) route
 - The second interconnection between Belgium and Germany for which a MoU was signed between Amprion and Elia on 14 February 2023.
- Long-term developments are still under consideration:
 - Study the further development of land corridors in the North Sea region and the needs that new corridors at the North, South and East borders can address in this respect.
 - Strengthening the Belgium-Luxembourg interconnection.

Taking into account these confirmed infrastructure projects and the expected evolution of installed generation capacity ('with additional measures' scenario), Belgium has already achieved an electricity interconnection rate of 24 % in 2020. After the entry into operation of the interconnection with Germany (ALEGrO) in early 2021, this rate increased to around 33 %. Due to the increase in renewable capacity, this percentage decreases slightly towards the end of the reference period. However, it is well above the targets set at European level for 2020 (10 %) and even exceeds those set for 2030 (15 %).

Belgian interconnection tariff EU objective

Tarif d'interconnexion belge

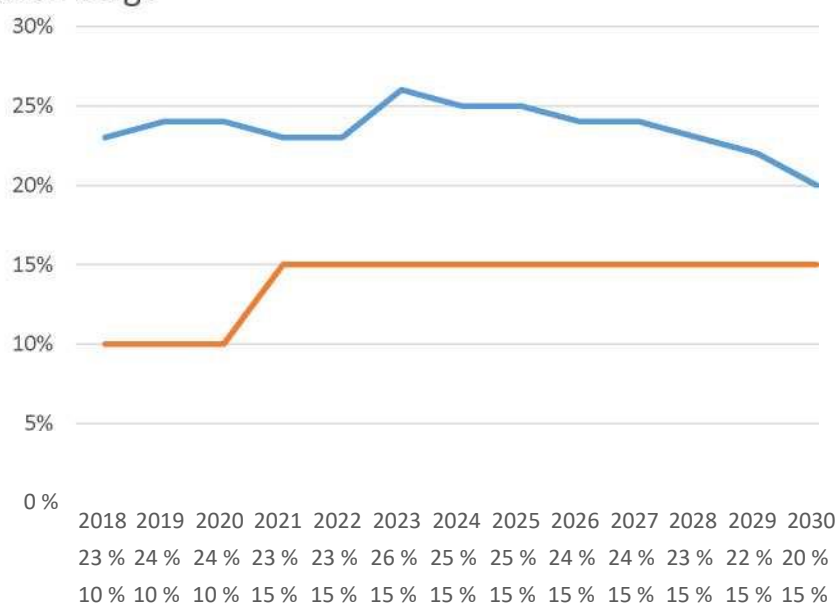


Figure 3: Belgian interconnection rate

In addition, the internal grid will also be strengthened to meet the challenges of the future electricity system: electrification, large-scale integration of renewable energy (including offshore), car manufacturers, needs for flexibility.

These reinforcements include:

- Strengthening the internal backbone of 380 kV

- The placement of the dynamic assessment line
- completion of missing links
 - Ventilus
 - Boucle du Hainaut
 - Reinforcing the Gezelle – Van Maerlant axis

It also envisages providing greater reception capacity on the transmission network, as a high degree of electrification of industry and thus more customers connected to the transmission network are expected. The infrastructure for transformation to the medium voltage grid is also systematically replaced in order to anticipate the increase in consumption on lower voltage networks.

2.4.2. Energy transmission infrastructure

- i. Major electricity and gas transmission infrastructure projects and, where appropriate, modernisation projects, necessary to achieve the objectives and targets of the five dimensions of the Energy Union Strategy.*

For the natural gas sector, the transition to L gas will require the necessary investments, mainly at the level of the DSO (distribution system operator), in terms of regional competence. The agreed timetable will be strictly adhered to. In addition, the Fluxys network operator is planning further investments to ensure the integrity of the existing infrastructure and make the necessary adjustments to respond to new developments (e.g. renewable gases, hydrogen, sector coupling).

In this context, the federal government approved a first hydrogen law. The Law of 11 July 2023 on the transport of hydrogen by pipeline was published in the Moniteur belge on 25 July 2023. This 'Hydrogen Law' organises the nomination of the hydrogen transmission network operator who will be responsible for the planning, development and management of the hydrogen transmission network in Belgium.

To address the growing public opposition to large-scale infrastructure works, network operators will assess with the competent authorities additional measures that could provide more support to projects and contribute to their timely implementation.

- ii. The main electricity and gas transmission infrastructure projects and, where appropriate, modernisation projects, necessary to achieve the objectives and targets of the five dimensions of the Energy Union Strategy.*
- iii. Where applicable, large infrastructure projects, excluding projects of common interest (PCIs) (2)*

2.4.3. Market integration

- 1. National targets for other aspects of the internal energy market, such as increasing*

system flexibility, in particular as regards the promotion of competitively determined electricity prices in accordance with the relevant sectoral legislation, market integration and interconnection, to increase the tradable capacity of existing interconnectors, smart grids, aggregation, demand response, storage, distributed generation, dispatching, redispatching and limitation mechanisms, and real-time price signals, including a timetable indicating when the targets should be met.

Flemish Region

The energy and climate transition is both an individual and a collective responsibility, with policies aimed at not unnecessarily pursuing individual local optimisations, but rather the optimal overall system. One example is the excessive emphasis on self-consumption, which results in an underestimation of decentralised production among citizens. This is largely due to the significant difference between the value of the injection and that of the levy, which results from all kinds of costs passed on to the electricity bill. In line with the Flemish Government Agreement, we ensure that the additional costs on electricity bills certainly do not increase further due to Flemish policy. A reduction in these costs will lead to a reduction in the difference in value between self-consumption and the injection of energy produced.

In this transition, the importance of energy clusters in buildings should be highlighted. In apartments, multi-dwelling buildings, service-homes, shopping centres, etc., the electricity meter of the common areas changes from an insignificant consumer for the common areas to an energy exchange node: charging electric cars, central heating via common heat pumps, energy generation or marketing of available flexibility. This collective dimension must be deployed as an asset in the transition.

With a lighter bill where the real value of energy, hour per hour, weighs, Flemish citizens and businesses are encouraged to consume when energy is abundant, even if it comes from offshore wind in the North Sea or photovoltaic in the Netherlands, and vice versa, to consume less when energy is less available. Flexibility is therefore crucial throughout the transition process.

Meeting our climate goals and producing more renewable energy also requires tackling the energy system and infrastructure as a whole.

The integration of intermittent, renewable and decentralised energy leads to an increasing demand for digitalisation, flexibility and smarter grid management and grid investments. Flexibility can be ensured in different ways: matching supply and demand, broadening connections between countries, making energy grids smarter and creating opportunities to store energy in the short and long term. Long-term energy storage will be indispensable, especially in order to cope with seasonal variations in supply and demand. To meet these challenges, at the end of 2022, the Flemish Government approved¹⁵⁹ the Flexibility Plan 2025 (Flexibility Plan 2025), which brings together 20 concrete actions.

In line with the requirements of the Directive on common rules for the internal market in electricity, Flanders has set a target of equipping 80 % of small metering facilities with a digital meter by the end of 2024. The full deployment should be completed by 1 July 2029.

By the end of October 2022, 2.014.514 digital meters had been installed (32 % of all meters to be replaced), including 345.696 digital meters at prosumers (31 % of all prosumers). By making available the data collected

¹⁵⁹ <https://beslissingenvlaamseregering.vlaanderen.be/document-view/635A45301EA6B745D23CC9F2>

by the digital meter, active customers can exploit them. 297.690 customers have an active account on Mijn Fluvius with daily values for electricity and natural gas or quarterly data for electricity and hourly data for natural gas. Thanks to local user ports of the digital meter, detailed consumption data can always be obtained: data to the second for electricity and 5-minute values for natural gas. Since then, 61.891 network users have opened this port to actively use it.

Region Walloon

Although there is no specific target in terms of volumes of **flexibility**, understood as demand management, load shifting, individual or collective storage, these are essential for the integration of more renewable energy. Various measures are foreseen in Chapter 3.3 to allow and facilitate the mobilisation of this flexibility. They are aimed in particular at security of supply and system balance, as well as congestion management.

There is also no need to set targets for the development of **smart grids**, but the related measures set out in Chapter 3 ensure their rapid development, enabling:

- Maximising the capacity to accommodate infrastructure (for production and flexible tools) and synchronicity by aiming at optimising the collective well-being of the electricity system as a whole;
- Maximising energy efficiency efforts;
- The remuneration of networks on the basis of performance indicators, starting with the removal of tariffs not linked to the electricity system.
- Finally, to a large extent, the Plan will have a significant impact on distribution networks (electric mobility, decentralised and intermittent renewable energy, heat pump, decarbonised molecule, etc.), which will require large-scale investment in their networks (intensive asset) by the distribution network managers (DSOs) in order to be able to accommodate these new modes of energy production and consumption. It is therefore essential that the Walloon legal framework and successive pricing methodologies support this ten-year investment policy leading to a decarbonised society by 2050. Indeed, the distribution networks have not been dimensioned for these new uses, which did not exist 15 years ago. It is therefore essential to modernise and strengthen these networks in order to enable them to accommodate all these new uses and to be a driver of the energy transition (see Chapter 3.3).

Brussels Capital Region

The Brussels provisions related to the organisation of the gas and electricity markets are included in the sections on energy from renewable sources. There is no related specific objective.

- ii. *Where applicable, national targets for the non-discriminatory participation of renewable energy, demand response and storage, including through aggregation, in all energy markets, including a timetable for the achievement of the targets.*
- iii. *Where applicable, national targets to ensure that consumers participate in the energy system and benefit from self-generation and new technologies, including smart meters;*
- iv. *National targets for electricity system adequacy and flexibility of the energy system in terms of renewable energy production, including a timetable for achieving the targets.*
- v. *Where appropriate, national targets to protect energy consumers and improve the competitiveness of energy retailers*

Federal State

NOTE: The federal competences and priorities on these issues focus mainly on the first point, namely market coupling.

Market integration

For the electricity sector, Belgium has been active in the Pentalateral Energy Forum (PLEF or PENTA) since 2007 to improve security of supply and optimise electricity trade and use of existing infrastructure through deep market coupling. This led to the launch of daytime ahead market coupling based on flows between the countries of the Central Western Europe region in 2015.

Over the period 2020-2030, the results of existing market coupling will be assessed at regular intervals on the basis of clear Key Performance Indicators (KPIs). If the results do not meet expectations, ways to improve existing mechanisms will be discussed in consultation with governments, regulators, TSOs (transmission system operators) and market participants from PENTA countries.

In this context, Belgium will closely monitor the capacity commercially available on interconnections with neighbouring countries. Where necessary, the correct and timely implementation of the action plans developed in accordance with the Regulation on the internal market for electricity will also be closely monitored to ensure that its security of supply policy is not compromised.

Flexibility

Due to the increasing share of intermittent energy sources in the electricity system and the variability of demand, the need for flexibility resources to ensure grid stability 191

will only increase in the coming years. For several years, the Elia system operator has therefore assessed not only security of supply in the strict sense of the term, but also the need for flexibility for system stability.

In the latest version of the Adequacy And Flexibility Study for Belgium 2020-2030, Elia foresees a need for 5 080 MW of increased flexibility and 4 340 MW of reduced flexibility in 2030. This represents a 40 % increase compared to 2020. This will involve the use of the following forms of flexibility:

- Flexible use of production units.
- Demand management.
- Electricity storage.
- Interconnections.

Offshore

As part of the North Sea Energy Cooperation (NSEC), it was decided in 2017 to study intensively and work in practice on a number of clusters. In addition to long-term projects such as Doggers Bank, the German loop and developments in the Irish Sea, the Belgium-Netherlands – UK cluster is particularly important, as a large part of offshore wind production is already carried out in this area and can therefore be the subject of cooperation in the short term.

Belgium is very active in developing cooperation on this cluster, with the Belgian Offshore Platform (BOP), CREG and Elia, and is exploring with the other countries concerned the possibilities of connecting, collaborating and further developing the cluster.

Flemish Region

Flanders introduced the principle of an “energy standard” by way of a decree in 2018. The objective is to ensure that the impact of the different regional components of energy cost in Flanders does not have a significant negative effect on the purchasing power of domestic customers and to protect the competitiveness of businesses by comparing energy costs with neighbouring countries and, in particular, for energy-intensive businesses, by ensuring that the sum of the different regional components of energy cost is not significantly higher than the sum of comparable costs in neighbouring countries.

The Flemish Government Agreement 2019-2024 stipulates in this respect that *the additional costs on electricity bills will certainly not increase further due to Flemish policy* and that the energy standard must be converted into effective measures so that companies with innovative power can remain in Flanders.

In implementation of these provisions, the following measures have already been taken, inter alia:

- Introduction from January 2021 of supercap conditions for cogeneration for electro-intensive enterprises.
- Adjustments to the certificate subsidy system, in particular by further basing the Guaranteed Rate of Return (IRR) on the market, providing for a maximum support volume, revising banding factors and no longer providing support in case of negative electricity prices.
- Reduced PSO costs passed on to the electricity bill through the purchase of green certificates, transfer of the cost of street lighting, reduction of quota obligation.
- Passing on costs of new policies through the Energy Fund, general resources or bridge funds instead of electricity bills.

Energy costs in the three regions of Belgium are compared annually with those of neighbouring countries for certain consumption profiles, by means of a study commissioned by the 4 regulators. On this basis,

appropriate measures may be taken.

Region of Wallonia

The aim is to ensure a level of energy prices that are competitive with competing countries and regions. This objective must go hand in hand with a system of continuous monitoring of prices, in order to adjust the cost structure so as to correct shortcomings in firms' energy competitiveness. This monitoring must be formalised by means of a structural energy standard and its cyclical revision. At the same time, the introduction of a shield for the most vulnerable energy will be imperative in the event of crises or market failures (see below).

Brussels Capital Region

With a view to achieving the 2030 BCR renewable energy targets, the levers used in PACE will help to put the consumer back at the centre of the energy transition, facilitating access to new production and consumption patterns. The new instruments will make the Brussels consumer an actor in achieving regional objectives. The support envisaged should facilitate the accelerated development of these new production and consumption patterns.

2.4.4. Energy poverty

1. *Where applicable, national energy poverty targets, including a timeline for the achievement of those targets.*

Although Belgium is one of the world's most prosperous countries, energy poverty has long been a persistent reality. The Energy Poverty Platform publishes an annual energy poverty barometer¹⁶⁰. It measures energy poverty using three indicators:

1. Families experiencing 'measured energy poverty' spend too much of their disposable income on energy costs (14.9 %).
2. Families experiencing 'hidden energy poverty' significantly reduce their energy consumption, making their energy costs abnormally low compared to families in a similar situation (4.5 %).
3. Families experiencing subjective energy poverty report that they have financial difficulties to keep their homes warm properly (3.2 %).

Taking into account the overlaps between these categories, 20.6 % of Belgian households will face some form of energy poverty in 2021 (445 000). Many of them are single-parent families and (older) single parents. One in five households in energy poverty is made up of at least one person employed. In other words, having an income from work does not automatically protect against energy poverty. Tenants, and especially social tenants, are overrepresented in energy poverty rates.

The four entities each contribute, within the scope of their competences, to the fight against energy poverty. The federal government focuses on tariff measures (the social tariff), regions on preventive actions (e.g.

160 <https://media.kbs-frb.be/nl/media/10491/Barometer%20Energiearmoede%202023%20DEF>

improving energy efficiency in homes as structural measures) and curative actions (e.g. assistance in the event of energy debt accumulation).

Federal State

There is a federal policy to protect vulnerable or low-income household energy consumers. This policy helps to limit the impact of energy bills on purchasing power:

Social tariff for electricity and natural gas

Since 2004, there has been a social tariff for electricity and natural gas, which is cheaper than the average market price for certain target groups of people in precarious situations. Since 2010, the social tariff for electricity and natural gas has been applied automatically in most cases, so the beneficiary does not have to take steps to benefit from the reduced tariff. The social tariff is calculated every three months by the Belgian energy regulator on the basis of the cheapest market tariffs, allowing it to monitor market trends. However, there is a capping mechanism in the event of a sudden price increase. For electricity, the social tariff can increase by up to 10 % per quarter and 20 % compared to the average of the last four quarters. For gas, these percentages are 15 % and 25 % respectively. From 1^{July} 2022, beneficiaries connected to a district heating network will also benefit from the social tariff.

Electricity Gas Fund

For the most vulnerable, CPAS can provide preventive and curative support to citizens who cannot afford to pay their gas and/or electricity bills through the Electricity Fund.

Social Chauffage Fund (fuel oil fund)

The Social Chauffage Fund was created for citizens in difficult situations who are heating oil or fuel oil. This fund is partly involved in the payment of heating bills if one belongs to certain target groups.

Payment instalments

The staggered payment system allows customers to pay fuel oil or fuel oil bills in several instalments. The advantage of this system is that a significant supply can be made without the customer having to pay a large sum of money in one instalment.

Campaign: gas – electricity: compare

Each region of the country has a body that regulates energy prices. Suppliers in each region must provide their respective regulators with the different tariffs they apply each month. All these tariffs are recorded in a database and can be compared using a simulator available on the website of each regulatory body. The campaign encourages citizens to use simulators and make annual comparisons in order to choose the best contract. The operation of simulators has been changed several times over time in order to provide the best possible information to citizens.

The current measures at federal level mainly concern financial support directly or indirectly on the energy bill or which can be applied by the CPAS. Pricing policy is therefore a federal competence. These measures will continue in the future, as it is important that the energy bill remains affordable for all citizens and that vulnerable citizens do not find themselves in energy poverty because they cannot pay the bill. In addition, the

beneficiaries of the social tariff also benefit from additional protection measures in case of energy cuts and regions propose additional measures such as higher premiums for insulation and solar panels, free energy analyses, etc.

Both in the Government Agreement and in the Fourth Federal Plan to tackle precariousness and inequality of 15 July 2022¹⁶¹, the focus is on assessing and improving existing federal measures to tackle energy poverty. On the basis of these visions, the federal measures were assessed by the various agencies concerned and the administration in order to take improvement measures.

As part of the fourth federal plan to tackle poverty and inequality, the federal government will take measures to monitor energy poverty using energy poverty indicators with a view to developing ad hoc government measures. The government will also ensure that support is maximised in the event of energy poverty, in particular by tackling the non-take-up of rights.

In addition, the FPS Economy has published another study which examines the impact of energy prices on increasing inequalities in the Belgian social model. Through Statbel, the Belgian statistical office, the fact of not being able to pay the energy bill is included in material deprivation (it cannot afford common living standards in terms of rent, water, electricity and so on). In 2017, the rate was 5 %.

The King Baudouin Foundation, the manager of the Energy Poverty Platform, published an eighth edition of the Energy Poverty Barometer in 2022. More than one in 5 households in Belgium (21.5 %) live in energy poverty and this proportion has hardly changed since 2009. Energy poverty is broken down into 3 forms: measured energy poverty (15.3 % of Belgian households have an energy bill that is too high compared to their income), hidden energy poverty (4.4 % consume the least energy to make ends meet) and subjective energy poverty (3.8 % indicate that they cannot heat their homes properly)^{162M}. The barometer links these figures to family size, housing and health. It concludes that poor quality housing and poor health increase the risk of energy poverty. Families without income, single parents and single-parent families are the biggest victims of energy poverty. In addition, women are relatively more affected by energy poverty due to their over-representation in the categories of single-parent families and single people aged 65 and over. Poverty figures published by Statbel, the Belgian Statistical Office for 2022, show that 18.7 % of the Belgian population is at risk of poverty or social exclusion. 5.8 % of Belgians faced severe material and social deprivation in 2022.¹⁶² ¹⁶³The inability to pay public utility bills and to adequately heat their homes are important factors in this indicator¹⁶⁴. This is a matter for the regions to take the necessary measures. Nevertheless, an inter-federal approach is important. On the basis of regional and federal competences in the field of energy, different governments can take coordinated measures that work together on different solutions¹⁶⁵.

The various studies and statistics indicate that energy poverty has economic, structural and technical causes and that a holistic approach is needed. In order to achieve the objectives set by the EU, it will be necessary to

¹⁶¹ Fourth Federal Plan for Combating Poverty and Inequalities, FPS Social Integration, Poverty Reduction, Social Economy and Metropolitan Policy, November 2022.

https://www.mi-is.be/sites/default/files/documents/vierde-federaal-plan-tegen-armoede-en-ongelijkheid_0.pdf

¹⁶² Energy, energy and water poverty barometers. Analysis and interpretation of the 2020 results. An initiative of the Platform Against Energy and Water Poverty, King Baudouin Foundation, 2022. https://media.kbs-frb.be/fr/media/9593/PUB2022_3860_BarometrePrecariteEnergetique_FR
¹⁶³ The degree of material deprivation is an indicator that expresses the inability to afford certain items considered desirable or even necessary by most people to lead a proper life. The indicator distinguishes between people who do not have the means to buy a particular good or service and those who do not have that good or service for another reason, for example because they do not want it or do not need it. The indicator measures the percentage of the population that does not have the means to afford at least three of the following nine elements for: pay their rent, mortgage or utility bills; keep their homes sufficiently warm; to face unexpected expenses; regularly eat meat or proteins; going on holiday; a colour television; a washing machine; a car; a telephone. The severe degree of material deprivation (GDS) is defined as the forced inability to pay at least four of the above-mentioned articles.

¹⁶⁴ Risk of poverty or social exclusion, Statbel, 16 February 2023. <https://statbel.fgov.be/fr/themes/menages/pauvrete-et-conditions-de-vie/risk-de-poland-ou-dexclusion-social->; <https://statbel.fgov.be/nl/themes/huishoudens/armoede-en-levensomstandigheden/risico-op-cabinet-de-sociale-uitsluiting#documents>

¹⁶⁵ Press release of 16 February 2023 of the Centre for Combating Poverty, Poverty and Social Exclusion, [Communiqué of press – EU-SILC 2022 \(campaign-archive.com\)](#) Press release – [Figures EU-SILC 2022 \(campaign-archive.com\)](#)

analyse how current measures at each level can contribute or be reformed so that they are in line with the vision of tackling energy poverty aimed at minimising consumption. It should not be forgotten that energy is a basic need that everyone should have access to and that it must therefore be affordable for citizens in precarious situations.

Flemish Region

Flanders has no specific energy poverty targets. The Flemish Government Agreement 2019-2024 included *“additional efforts to reduce energy poverty”* in the coming years. The General Energy Policy Note 2019-2024 also set ambitions to shape a *socially just energy transition by strengthening social energy policy with appropriate measures and continuously monitoring energy accessibility for all target groups*. The deployment of social protection against energy cuts and structural work to reduce energy consumption in homes are the two paths on which Flemish policy is working to achieve these objectives.

In order to mitigate the negative social impact of the new emissions trading system for buildings and road transport, a Social Climate Fund has been created at European level. Belgium will receive part of these funds. To obtain these funds, Member States must submit a Social Climate Plan to the European Commission by June 2025. A Flemish contribution to the preparation of the Belgian Social Climate Plan will be made when preparing the final update of the VEKP. To this end, the necessary measures that would be eligible for European funding through the Social Climate Fund will be identified. The focus will be on the structural reduction of energy bills.

Region Walloon

Access to energy for all and the fight against energy poverty are at the heart of the Walloon energy policy. Energy poverty is not clearly defined by legislation. It is generally recognised that energy poverty refers to a situation where a person or household faces particular difficulties in meeting their basic energy needs in their homes. The latest energy and water poverty barometer in Belgium (2020 figures)¹⁶⁶ highlights that 29.5 %, almost one out of three Walloon households, suffers from at least one of the following three forms of energy poverty:

- 23.2 % of households were in energy **poverty**, corresponding to households that spend too much of their income on energy-related expenditure.
- 4.4 % of households were in **hidden energy poverty**, corresponding to households that restrict their energy consumption (compared to similar households).
- 6.5 % of households were affected by energy poverty, corresponding to: households who report having experienced financial difficulties in heating their homes correctly.

¹⁶⁶Source: King Baudouin Foundation, June 2022. The barometers on energy and water poverty in Belgium are published each year in order to identify problems and their trends and to understand their causes.

At the level of Belgium, in total, 21.5 % of households were potentially affected in 2020 by some form of energy poverty. Tenants, including social housing tenants, are more affected by energy poverty than owners. Their ability to influence the choice of energy carriers or to improve the energy performance of their dwelling or major equipment is limited and most of the time depends on a decision by the landlord (s).

Finally, single households, the vast majority of which are women with children, appear to be particularly vulnerable to energy poverty. Households not living in relatively isolated housing are overrepresented in all three forms of **energy poverty**. **All policies and measures in the plan set out in Chapter 3 aim at reducing energy poverty**. In particular, the chapters, dealing with the various aspects of energy policy, provide for many mechanisms and actions for precarious or low-income households. These include financial support for the renovation of housing, the fight against energy passoires (very poorly isolated housing), coaching and personalised information, measures to ensure respect for rights and the provision of sufficient energy at an acceptable price to all households, etc. The **Walloon strategy for long-term energy renovation of the building** also highlights the desire that energy renovation should go hand in hand with a significant reduction in energy poverty and an improvement in the quality of Walloon housing (impacting the comfort and health of the inhabitants). All measures which aim to reduce the financial burden of energy burdens or which contribute to improving the health and comfort of residents are part of the objective of reducing energy poverty. Moreover, the fight against poverty has been an integral part of Walloon policies for many years. On 25 November 2021, the Government of Wallonia adopted its new **plan for lifting out of poverty**. EUR 482 million will be mobilised until 2024. The plan aims to provide each Walloon and Walloon with progressive means to lift out of poverty, through access to basic comfort and access to employment. It is structured around 3 axes, including access to housing for all. For each of these axes, the plan sets out the concrete actions that the Walloon Government undertakes to take with which this plan is articulated. The various measures set out above and detailed in this plan are aimed at reducing energy poverty in a comprehensive manner. It is considered that the addition of these will help to achieve a reduction in energy poverty by at least one tier. Since other dimensions affect energy poverty and in particular household income are not included in the scope of the PACE, it is not possible to set an overall reduction target. In addition, specific indicators will have to be identified and/or developed to enable precise monitoring of changes in the number of households concerned. Measures to support households in difficulty will be assessed and improved. Organisations representing consumers, and in particular associations committed to vulnerable households and women's rights, will be involved.

Brussels Capital Region

Energy poverty is a reality that hits 27.6 % of households in the CBR, while 31.4 % of the Brussels population lives in a household with income below the at-risk-of-poverty threshold. The actions of PACE cannot be an aggravating factor in threats to access to energy and housing. The Brussels housing stock consists of 60 % of tenants, who have little influence on structural measures related to the energy efficiency of their homes. Social tenants and low-income tenants are particularly vulnerable to 198

energy poverty. This vulnerability is due to lower disposable incomes, and a significantly higher energy bill on the budget, despite lower housing costs and a social tariff for common gas and electricity meters, or even household expenditure if recognised as a protected customer.

In the context of the increase in targets, it is necessary to strengthen:

- Tackling energy poverty;
- The fight for affordable quality housing for all and ‘renovating’.

It is undeniable that increasing energy efficiency and sustainability improves living conditions through better thermal comfort, better ventilation and the removal of harmful substances (e.g. asbestos). But while energy efficiency and sustainability can reduce energy consumption, the challenge is to ensure that renovated housing remains affordable for low-income and vulnerable households.

Supporting households and developing tailored financial solutions to compensate for initial investment must ensure accessibility of renovation and accessibility to renovated housing for all, whether to meet the PACE obligations (energy or other) or at the initiative of individuals.

Moreover, the measures proposed in the PACE should not contribute to the phenomenon of ‘renovating’, which is observed in old or popular neighbourhoods that have been substantially renovated. The cost of purchasing the dwellings or the increase in rents resulting from the improvement works make the dwellings inaccessible to their former occupants (who sometimes had to move to enable the works to be carried out).

Actors on the ground, such as frontline social workers, will play a key role in this context. Given the integrated nature of social and environmental inequalities, the networking of “social” and “environmental” grassroots actors should be supported in order to bring about convergence of these actors’ actions.

In summary, the negative impacts to be taken into account in the implementation of the additional measures are the following:

- unfairness in access to the benefits of the measure if the instruments do not allow its accessibility (information, support, financing) to vulnerable households;
- the risk of reducing access to decent housing, whether on the purchasing market (increase in purchase prices) or on the rental market (increase in rents);
- the risk of renovation in situations where the works cannot be carried out on the occupied site (in addition to situations where the tenant does not have the capacity to bear the resulting rent increase).

The ambitious measures that the Region intends to undertake in the plan must continue to prioritise support for households of all kinds and the development of financial solutions tailored to each individual’s resources. It is only on this condition that this plan will be perceived as fair and equitable and that it will be able to meet with the support of the entire Brussels population.

2.5. Dimension of research, innovation and competitiveness

1. National targets and funding targets for public and, where possible, private research and innovation related to the Energy Union, including, where appropriate, a timetable for the achievement of those objectives;

Research and innovation policy, at federal and regional level, linked to the European Energy Union aims to support the overall objectives of European energy policy in terms of sustainability, energy security and competitiveness. In addition, research and innovation policy stimulates innovation in and by Belgian

companies in order to increase their competitiveness. Belgium, the federal level and the regions, are convinced that a common European approach is needed to achieve the European Strategy for a Resilient Energy Union and a forward-looking climate policy.

Belgium undertook to spend at least 3 % of its gross domestic product on R & D. Flanders spent 3.6 % of its overall gross domestic product on R & D in 2021, Wallonia 3.6 % and Brussels EUR 400 million for the period 2021-2027.

Belgium's priorities in this dimension are to support and encourage research and development aimed at promoting the energy transition in particular in areas with the greatest climate impact, including sustainable construction, renewable energy, energy network management and adaptation, sustainable mobility, agricultural production, the circular economy and all sectors directly aimed at reducing greenhouse gas emissions. In addition to the development and dissemination of new technologies, it is essential to maintain and develop training profiles in order to create sustainable jobs linked to the energy transition and to maintain the necessary versatility of training profiles.

Hydrogen is one of the levers towards a green and low-carbon energy mix. Belgium, the federal level and the Flemish and Walloon regions wish to strengthen its leading position in this area and to support the development of its industry in H₂ technologies and its H₂ derivatives. These different skill levels support hydrogen research and innovation according to their skills.

Competitiveness

To ensure competitiveness, the energy standard must ensure that the different components of the cost of energy in Belgium are not higher than in neighbouring countries. This energy standard depends on the consumption profile and energy intensity.

The competitiveness of the economy, in particular small and medium-sized enterprises to ensure sufficient access to low-carbon and zero-carbon energy at prices competitive with our direct neighbours, will be taken into account and a framework will be put in place to enable companies to drastically reduce their greenhouse gas emissions.

Funding for research and innovation related to the Energy Union

R & D funding instruments

The federal level and regions in Belgium contribute to the financing of research and innovation related to the Energy Union with instruments in line with their competences. They are described in more detail later in the plan.

At European level, Horizon Europe, the European Innovation Fund, the European Investment Bank, the European Investment Fund (EIF), the ERDF, the LIFE Clean Energy Transition programme and Connecting Europe Facility Energy are used.

Financing measures, including the use of EU funds

The financing instruments that are not limited to the dimensions of the Energy Union but can contribute to them are the premium for innovation and scientific research under the Recovery and Resilience Plan described in Chapter 3.5 iii for R & D. The many European cross-cutting instruments that can be deployed, including InvestEU, EIC accelerator, innovation support (EUREKA, EUROSTARS, etc.) and support for IPCEI projects... are all described in more detail below.

Flemish Region

Flanders has no relevant regional objectives. Specific measures are listed in Chapter 3.

Region Walloon

Vision and strategy for research and innovation

According to the Regional Policy Declaration (DPR) 2019-2024¹⁶⁷, an ambitious investment policy will be pursued in areas such as research and innovation, infrastructure, housing, insulation, renewable energy and soft and collective mobility. The Government will support R & I to accelerate the social, ecological and economic transition.

In partnership with competitiveness clusters, clusters and industrial federations, the Government intends to step up R & D in the most relevant niches concerning the energy transition in Wallonia. With this in mind, the Government will task the competitiveness clusters and clusters, in collaboration with the SPW-Economy, Employment and Research, to devote part of their activities specifically to the energy transition.

The Government will draw up an objective contract with the competitiveness clusters in line with the Intelligent Specialisation Strategy – S3 (in particular with indicators, evaluation, governance and reporting). These objectives must meet Wallonia’s environmental and climate commitments made in the context of the implementation of the Paris Agreement.

For clusters, the Government intends in particular to:

- Optimise all economic structures and strengthen cross-cutting axes (digital, automation, energy, mobility, circular economy, wellbeing, resource management, ageing population, climate change).
- Strengthen the culture of calls for projects within the competitiveness clusters and in particular future projects in basic research, linked to cluster strategies.
- Ensure better internationalisation of members of competitiveness clusters and clusters and support participation in European calls for projects.

In March 2021, the Walloon Government adapted the Smart Specialisation Strategy (S3), renewed for the period 2021-2027. It provides the Region with an updated framework enabling an ambitious innovation policy and fostering the economic and societal development of our region.

S3 is the strategic framework for Wallonia’s research and innovation policy and industrial policy. This approach enables each European region to identify and develop its own benefits on the basis of its strengths and potential. As a condition of access to the European Structural Funds, it concerns all the levers of innovation policy and is a central element of Wallonia’s recovery plan.

The S3 Strategy is based on 5 Strategic Innovation Areas (DIS). These DIS have been determined on the basis of 6 criteria:

- Links with societal challenges.
- Market potential.
- Industrial forces and potential.
- Distinctive assets in R & D & I.
- Positioning in value chains and internationally.
- Complementarity with other European regions and European programmes.

¹⁶⁷<https://www.wallonie.be/fr/actualites/declaration-de-politique-regionale-du-gouvernement-wallon-2019-2024>

One of the five DIS **concerns sustainable energy systems and habitat**¹⁶⁸.

Each DIS is marked by a roadmap setting out the vision and ambitions, the strategic areas, the intervention logic and the means to be mobilised.

The DIS roadmap “Energy systems and sustainable habitats” is defined on the basis of the objectives of the Walloon Climate Energy Plan and the Fit for 55 package, the areas in which expertise is recognised in the Walloon Region, and in line with the European Roadmap (ETS-Plan) and the themes of Cluster 5 “Climate, Energy and Mobility” of the Horizon Europe Framework Programme.

The vision and ambitions are as follows:

- Improving the energy efficiency of buildings and reducing CO2 emissions in the construction sector.
- Improving the energy efficiency of industrial production and their decarbonisation.
- Deployment of renewable energy.
- Decarbonisation of the logistics and transport sector.

In order to achieve these ambitions, strategic areas have been defined:

- Design tools, methods and building elements for improving the energy performance of buildings.
- Digitalisation and management of flows
 - Buildings: digital solutions related to securing, modelling, simulation and monitoring of the energy consumption and performance of a building and a set of buildings, integration of buildings and electromobility into electricity grids (smart-charging, V2G, heat pump management, etc.), management of district heating/cooling, zero energy or positive energy districts
 - Industry: digitalisation of processes, management of energy production and consumption flows, energy networks
 - Renewable energy: integration of renewable energy into the electricity and thermal networks and management of decentralised energy production, development of renewable and civic energy communities, including in island systems (microprojects)
 - Mobility: management of traffic flows and transport networks (logistic-transport – mobility)
- Energy storage: this area includes storage technologies themselves, but also the production of energy carriers and energy transformation technologies such as cogeneration.
- Hydrogen economy.
- Compared to the 3 key principles for the clean energy transition, on which the green deal is focused (energy efficiency and renewable energy sources, secure and affordable energy supply, integrated, interconnected and digitalised energy market), the strategic area ‘Digitalisation of flows’ will contribute to a fully integrated, digitalised and interconnected energy market. Energy efficiency in buildings and industry is part of the ambitions. The strategic energy storage area will contribute to the management of intermittences in the electricity grid and the development of renewable energy. Finally, the hydrogen economy will contribute to the decarbonisation of the energy system.

Funding objectives and targets

In particular, the objectives corresponding to the strategic areas above are:

1. New insulating materials, new renovation and construction techniques (including modular) as well as new architectural and urban planning concepts are integrated.

¹⁶⁸<https://www.wallonie.be/fr/actualites/declaration-de-politique-regionale-du-gouvernement-wallon-2019-2024>

2. New facilities for intelligent energy, traffic and logistics management systems and new energy communities are being set up. The diffusion of these technologies is enhanced through their installation, in particular in industries. The financing solutions for these facilities are adapted and strengthened.
3. New energy storage solutions must be available and integrated into buildings and industry, and at the service of energy networks, at a reasonable cost.
4. New solutions for the production and use of hydrogen must be available and integrated in industry and transport at a reasonable cost.

The Walloon budget for research and innovation is managed mainly at the level of the SPW “Economy, Employment and Research”, including energy. However, the SPW Energie finances calls for projects in priority areas for Walloon energy policy.

In relevant projects, energy may be exclusive or partial (for example, consider a project to develop a new machine that will consume less energy at use and the cost of maintenance will be reduced). The budget taken over then relates only to the 'energy efficiency' objective of the project.

Each year, a survey of projects is carried out with a view to reporting within the International Energy Agency using its own methodology and a specific allocation key for complex or indirectly energy-related projects.

For the years 2012 to 2020 (latest report), the budget allocation for energy research is as follows:

The budget for energy projects is on average EUR 43.836.202 (average 2012-2020).

The average annual amount granted by Europe under co-financed projects (Structural Funds) is EUR 2.453.622 (average 2012-2020).

The average annual amount awarded by Europe from the research framework programme Horizon 2020, the societal challenge 'Secure, clean and efficient energy', is around EUR 1.840.755 (average 2014-2020). However, 2021 is a good year for the rest, with an amount of EUR 4.439.717.

The average annual amount awarded by Europe from the Horizon 2020 research framework programme, the societal challenge 'Climate action, environment, resource efficiency and raw materials' is around EUR 1.058.268 (average 2015-2020).

The objective is to achieve in 2030 an annual amount of public expenditure of EUR 110.000.000 million per year for energy and climate objectives in research and innovation.

This amount would come from the following sources:

- Walloon budget: EUR 75.000.000
- Budget from European programmes: EUR 20.000.000
- Budget from the Innovation Fund: EUR 10.000.000
- Budget from the Structural Funds: EUR 5.000.000

The additional budgets for an annual allocation of EUR 75 million from the Walloon budget to energy/climate will come from resources other than the traditional research budget, bearing in mind that other research and innovation sectors working on other topics should not be reduced.

Beyond the energy budget, a budget is considered for climate and environmental research (a small part of the budget could therefore depend on the SPW Agriculture, Natural Resources, Environment (SPW ARNE), for example).

Greater use is made of European funds by 2030 in order to minimise the impact on the Walloon budget, in particular by further improving Walloon operators' access to European programmes, such as the Innovation Fund, which has an annual budget of EUR 1 billion.

The European Union launched the Next Generation EU recovery plan in July 2020, consisting of a flagship instrument called the Recovery and Resilience Facility. In order to be able to sign up to the resources released under the Facility, Member States were invited to submit a National Recovery and Resilience Plan including a coherent set of reforms and projects 204.

public investment. These were to be implemented by 2026. Belgium was one of the first Member States to see its Recovery and Resilience Plan approved by the European Commission in April 2021. The Walloon part of the National Recovery and Resilience Plan is an integral part of the Wallonia Recovery Plan¹⁶⁹. The plan contains 6 axes, two of which cover research and energy:

1. Focus on youth and talent in Wallonia (EUR 1,275 billion)
2. Ensuring environmental sustainability (EUR 2,428 billion)

Changes in public and private budgets

The amount of the Walloon public budget allocated to research, development and innovation projects is on average EUR 316 million (average 2012-2020). In addition, other components of research budgets, such as the funding of universities and research centres, etc.)¹⁷⁰. The European budget for the Structural Funds and the Research Framework Programmes is not included.

The Walloon private research budget is around EUR 1.682 million per year (average 2012-2019, data 2020 not yet available). We will consider 2020 to be equivalent to the average.

Walloon GDP amounts to EUR 99.489 million (average 2012-2020, current euro).

The proportion of the Walloon public budget dedicated to energy projects is 13.87 % of the annual Walloon public budget allocated to R & D projects (average 2012-2020).

Private funding for energy research, development, innovation and competitiveness is difficult to assess. According to a proportionality report equivalent to the above, it should be in the order of EUR 228 million per year.

The proportion of Walloon GDP allocated to energy research (private and public) is therefore estimated on average at 0.28 %.

If private energy and climate research is on the same path as public energy and climate research, it would increase to EUR 571 million per year in 2030 (EUR 110 million * private energy research/public energy research).

In summary:

Wallonia	Current budgets	Forecast 2030
GDP 2012-2020	EUR 99.488.888.889	
Budget public Walloon research average 2012-2020	EUR 316.082.247	
Budget private Walloon research average 2012-2020	EUR 1.682.341.074	

¹⁶⁹ Voir https://www.wallonie.be/sites/default/files/2021-10/plan_de_relance_de_la_wallonie_octobre_2021.pdf

¹⁷⁰ See https://meri.belspo.be/site/database_en.stm

Walloon public budget for average energy research 2012-2020	EUR 43.836.202	EUR 75.000.000
Walloon public budget for climate research and average environment 2012-2017	not available	
Budget received from Europe, Structural Funds, for the research energy average 2012-2020	EUR 2.453.622	EUR 5.000.000
Budget received from Europe, Structural Funds, for climate research and average environment 2012-2017	not available	
Budget received from Europe, Horizon 2020, for the research energy average 2014-2020	EUR 1.840.755	EUR 20.000.000
Budget received from Europe, Horizon 2020, for climate research and medium environment 2014-2019	EUR 1.058.268	
Budget received from the Innovation Fund –	EUR 0	EUR 10.000.000
Budget private Walloon for energy research	EUR 227.546.522	EUR 571.000.000
Budget private Walloon for climate and environment research	not available	
Walloon, European and private public budget for energy research	EUR 275.677.102	EUR 681.000.000
Budget public Wallon-Europe/Private for climate research	not available	

Table 3: Current and projected 2030 budget for energy/climate research and innovation

Brussels Capital Region

Energy and climate transition means innovation and experimentation. As pointed out in the 2019 GPD, research, development and innovation are important drivers of economic growth but also levers for improving citizens' well-being. The Region must therefore step up its investment there.

- ii. *Where applicable, national targets, including long-term targets for the implementation of low-carbon technologies, in particular for the decarbonisation of energy-intensive and carbon-intensive industrial sectors and, where appropriate, for the corresponding carbon transport and storage infrastructure*

Federal State

Belgium considers it a priority to maintain its knowledge and expertise in the nuclear field, and in particular in the field of responsible radioactive waste and spent fuel management, in order to progressively ensure a high level of safety in its management and to avoid imposing unnecessary burdens on future generations.

The focus is also on research for small modular reactors, for which a budget of EUR 100 million is foreseen. To this end, a technological assessment has been carried out and a long-term research programme is being developed.

As regards the development of hydrogen as a significant climate-neutral energy carrier in a climate-neutral society, provision is being made for the efficient development of backbone infrastructure and hydrogen import. An international certification framework is being developed. The government also supports Belgian R & D actors along the hydrogen value chain, for example by developing a testing infrastructure for hydrogen technologies and through grants and calls for projects.

- iii. *Where appropriate, national competitiveness targets*

Federal State

The system of energy standards for citizens and businesses aims to ensure competitiveness and purchasing power in relation to our neighbouring countries.

The energy standard process as introduced by the Law of 28 February 2022 is as follows:

- For 15 May: an annual assessment by the CREG of the level of the different cost components of electricity and natural gas bills, and a comparison of these with those of Germany, the Netherlands, France and the United Kingdom. The study uses the categories of consumers (type of economic activity and amount of consumption) determined in advance by Royal Decree on a proposal from the CREG, after consultation in the Council of Ministers.
- By 1 July: opinion of the CREG to the Minister, after consulting the Gas and Electricity Advisory Council, and the Central Enterprise Council. The opinion sets out recommendations for measures to safeguard the competitiveness of businesses and the purchasing power of consumers. These recommendations on the cost components of the energy bill fall within the federal competence for energy.

3. POLICIES AND MEASURES

Cross-cutting principles

The fair and inclusive transition is an important guiding principle of this plan. The plan also sets the competitiveness of the Belgian economy and its businesses as an important guideline. Accompanying measures are essential for achieving energy and climate objectives (financial support, support for training, professional transition and employment, etc.). The gender dimension is also taken into account horizontally in different parts of the following chapters.

The climate transition is expected to lead to limited net employment growth in Belgium, estimated at between 1 % and 1.7 % by 2030.¹⁷¹ However, job losses are expected in some sectors, either because of a reduction in certain activities or because actors do not reform their activities. The impact on employment is unevenly distributed across Belgian sectors and large differences may arise within aggregate sectors. The sectors expected to generate the most net employment growth by 2030 are services and construction, followed by manufacturing, transport, communications and agriculture. The energy sector is expected to experience limited net job losses, most likely due to reduced demand for fossil fuels. However, it masks the growth of employment in the renewable energy sector. It will therefore be necessary to prepare a more detailed regional estimate of growth and job losses in all sectors and subsectors in Belgium, in cooperation with the regions¹⁷²¹⁷³.

Federal State

- Objectives

Ensuring a just transition with all political actors and stakeholders, based on an analysis of a fair distribution of the benefits and burdens of the transition towards a climate-neutral society and aimed at identifying policy options ¹⁷³.¹⁷⁴

- Flagship actions

In 2022, the federal government launched a participatory process in consultation with regions and all stakeholders to develop possible pathways for a just transition to a climate-neutral society. A High Committee for Just Transition has been set up, composed of 22 academics, with the task of submitting a report to governments and parliaments on the following question: “How to organise and implement the just transition in Belgium?” In addition, a citizens’ consultation process (Agora) has also been launched at federal level to answer the question: “What are the conditions for the transition to be fair”. In the framework of the Just Transition Forum, civil society organisations were gathered to bring together their views, concerns, experiences and expertise on the just transition and to identify sectoral pathways for a just transition. Finally, a working group composed of experts from different administrations was tasked with examining the role of their competences in implementing the just transition. The four pathways mentioned form the basis of the National Conference on Just Transition in 2023¹⁷⁵. This conference is intended to be a process that will continue in the months following its launch and which will deepen the themes of employment and training in the context of the transition to climate neutrality, gender, poverty, etc.¹⁷⁶

In 2024, during the Belgian Presidency of the Council of the European Union, the just transition will be one of Belgium’s priorities in the Environment Council. An international conference on the just transition will be

¹⁷¹ Climact, Federal Planning Bureau, & Oxford Economics. (2016). Macroeconomic impacts of the low-carbon transition in Belgium. www.climatechange.be/2050 & Eurofound. (2019). The future of manufacturing. Energy scenario: employment implications of the Paris Climate Agreement. https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/fomeef18003en.pdf

¹⁷² Implications of the climate transition on employment, skills and training in Belgium, Climact, 2023.

¹⁷³ Motion for an interparliamentary resolution on Belgium’s climate policy Preparation for COP24 (10/10/18) Approved unanimously by the Special Committee on Climate and Sustainable Development <http://www.dekamer.be/FLWB/PDF/54/3319/54K3319001.pdf>.

¹⁷⁴ This means that job creation and job conversions must be embedded in existing social dialogue and social protection structures, training and skills development efforts, and respect for human and labour rights. The impact of the energy transition on employment needs to be properly anticipated. The principle of “just transition” is explicitly enshrined in the Paris Agreement.

¹⁷⁵ Political note 2023 Zakia Khatabbi, Belgian House of Representatives, 28 October 2022. <https://www.dekamer.be/doc/FLWB/pdf/55/2934/55K2934018.pdf>

¹⁷⁶ <https://www.justtransition.be/fr/transition-juste>

organised and, on the basis of an opinion of the European Economic and Social Committee requested by Belgium, the measures that the EU should take to create a more comprehensive policy framework for a just transition to achieve the goal of a carbon-neutral society and economy by 2050 will be discussed. During its presidency, Belgium will identify possible policy initiatives, coordination mechanisms and instruments needed to achieve a just transition.

Labour market reforms

In February 2022, the federal government reached an agreement on a series of labour market reforms, including the right to training for every worker. One of the main structural challenges of the labour market is the lack of training of workers during their careers. This is particularly the case for low-skilled workers. Today, we are working longer and in a rapidly changing economy, which has reinforced the importance of continuing education. To ensure that every worker has access to training, an individual right to training has been introduced. It was 3 days in 2022, 4 days in 2023 and 5 days from 2024¹⁷⁷178.

On 17 February 2023, the Council of Ministers approved a preliminary draft law on the creation and management of an electronic application “Federal Training Account”, which will enable workers and employers to manage and monitor their individual training rights and sectoral training rights and inform the worker accordingly. The Council of Ministers also approved an action plan which includes measures on work-based learning, training plans and the individual right to training mentioned above, monitoring the causes of labour shortages and tackling discrimination.¹⁷⁹For example, the action plan brings the required commitment to apprenticeships in the workplace to 3 % of the total workforce.

In the case of restructuring or collective redundancies, there is an obligation to include a section on training in any social plan.

- For example, the action plan brings the required commitment to learning in the workplace to 3 % of the total workforce.
- In the case of restructuring or collective redundancies, there is an obligation to include a section on training in any social plan.
- Employers must draw up an annual training plan for employees in their company¹⁸⁰.

Employment opportunities and gender balance

The climate transition is expected to lead to a slight net employment growth in Belgium, estimated at between 1 % and 1.7 % by 2030. However, job losses are expected in some sectors, either because of a reduction in certain activities or because actors do not reform their activities. The impact on employment is unevenly distributed across Belgian sectors and large differences may arise within aggregate sectors. It will therefore be necessary to provide a more detailed estimate of employment gains and losses in all sectors and sub-sectors in Belgium. The sectors expected to generate the most net employment growth by 2030 are services and construction, followed by manufacturing, transport, communications and agriculture. The energy sector is expected to experience net job losses, probably due to reduced demand for fossil fuels. However, it masks the growth of employment in the renewable energy sector. It will therefore be necessary to provide a more

¹⁷⁷ Regering bereikt akkoord round arbeidsmarkthervormingen, Dermagne.belgium.be, 15 februari 2022. <https://dermagne.belgium.be/nl/regering-bereikt-akkoord-rond-arbeidsmarkthervormingen>

¹⁷⁸Individueel opleidingsrecht – Informatie voor werknemers, FOD Werkgelegenheid, Arbeid en Sociaal Overleg, 2023. <https://werk.belgie.be/nl/themas/opleiding/individueel-opleidingsrecht/individueel-opleidingsrecht-informatie-voor-werknemers>

¹⁷⁹Invoking van een elektronische toepassing “Federal Learning Account”, news.belgium, 17 februari 2023. <https://news.belgium.be/nl/invoering-van-een-elektronische-toepassing-federal-learning-account>

¹⁸⁰Actieplan in uitvoering van de werkgelegenheidsconferentie 2021, news.belgium, 17 februari 2023. <https://news.belgium.be/nl/actieplan-uitvoering-van-de-werkgelegenheidsconferentie-2021>

detailed estimate of employment gains and losses in all sectors and sub-sectors in Belgium.

The energy transition can promote gender equality by increasing the participation of women in the renewable energy sector. In Europe, women account for only 35 % of the workforce in the renewable energy sector¹⁸¹. This large gender gap is partly due to the relatively low proportion of women and girls in STEM statistics. Out of 1 000 people aged between 20 and 29, only 7,9 women graduated in STEM (Science, Technology, Mathematics and Engineering), compared to 20,5 for men.¹⁸² The Women in Digital campaign, coordinated by FPS Economy, could have a positive impact due to its objective of encouraging women and girls to choose ICT/STEM¹⁸³ courses.

Measuring the impact of the measures

The 2022 Federal Report on Sustainable Development published by the Federal Planning Bureau concludes that the situation of women in the labour market has improved compared to 2019, but that it is increasingly difficult for them to reconcile work and private life. Women face more poverty than men¹⁸³¹⁸⁴.

Improving access to sustainable transport

Providing access to basic services for all is also part of a just transition. The public service contract with SNCB provides for a number of tariff reductions for specific groups. For example, a reduced rate is provided for young people, the elderly and those entitled to an increased allowance (with the BIM card). In addition, transport is free of charge for specific reasons, such as patriotic, social and professional reasons. Children up to the age of 12 also travel free of charge by train.

Region Walloon

The policies, measures and actions described in this chapter make it possible to materialise the objectives described in Chapter 2 in line with the five **guiding principles set out in the first chapter**:

- Rational use of energy and resources and increase energy efficiency
- Ending our dependence on fossil fuels and deploying renewable energy massively
- Creating a favourable environment for broad development and support for sustainable alternatives in all areas of society
- Ensuring a fair and inclusive transition
- Strengthening citizen participation in climate policy decisions and implementation

Among these principles, ensuring a **just and inclusive transition** is fundamental in the design and implementation of all policies and measures described in this chapter. While the level of climate objectives to be achieved cannot be revised downwards, accompanying measures to achieve them are an integral part of the road to go. Whether in terms of financial, technical or human support, such measures can be found in all

¹⁸¹ Women, Gender Equality and the Energy Transition in the EU, Policy Department for Citizens' Rights and Constitutional Affairs: European Parliament, 2019. [https://www.europarl.europa.eu/RegData/etudes/STUD/2019/608867/IPOL_STU\(2019\)608867_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2019/608867/IPOL_STU(2019)608867_EN.pdf)

¹⁸² Women in Digital Scoreboard 2019 – Country Reports, European Commission, 11 juni 2019. <https://digital-strategy.ec.europa.eu/en/library/women-digital-scoreboard-2019-country-reports>

¹⁸³ Woman in digital national and intersectoral strategy 2021-2026. <https://economie.fgov.be/sites/default/files/Files/Online/woman-in-digital-national-and-intersectoral-strategy-2021-2026-nl.pdf>

¹⁸⁴ https://www.plan.be/uploaded/documents/202210180347580.REP_TFDO2022_12707_N.pdf

the topics discussed in the sections of this chapter. The key areas concerned include, but are not limited to: support for the transition from fossil fuels to renewable energies, guaranteeing the right to energy, financial, technical and human support for the energy renovation of buildings, access to sustainable mobility, and support for training, professional transition and employment.

The just transition is an even more important cross-cutting principle as energy poverty has increased and unfortunately affects a growing number of households, not least due to the surge in energy prices in 2022.

To operationalise this principle, the following elements will be systematically taken into account when designing and implementing the measures foreseen in the PACE:

- The establishment of a dialogue between public authorities and key stakeholders, including representatives of businesses, trade unions, local and regional authorities, and associations, with particular attention to associations representing vulnerable and committed groups on women's rights.
- Analysis, for each measure, of the prospects for the development of green and decent jobs or skills for a low-carbon and resource-efficient economy.
- The compatibility of each measure with respect for human and labour rights and with the principles of social justice.
- The contribution of the measures to strong and effective, insurance-based and solidarity-based social protection systems.

The **cross-cutting dimension of gender** is also taken into account in the following chapters. Various reports show that women are the first affected by the effects of climate change, first in the southern hemisphere, but also in our Western societies. This is particularly the case with regard to energy or water poverty. For example, rising electricity prices are likely to have a greater impact on the poorest households. At home, however, households with a greater risk of precariousness are single-parent families, most of whom are single mothers with children (12 % of all households in Wallonia according to the latest IWEPS figures). Mobility, spatial planning and food-related policies in achieving climate objectives can also have gender-differentiated impacts.

This plan therefore takes into account the potential impacts of climate policies on gender equality and how climate policies can positively contribute to reducing any form of inequality or discrimination, and provides for specific measures to this effect, including in terms of access to energy, mobility, training and employment.

Brussels Capital Region

- The Government also undertakes, as part of its PACE, to: restore the rental status of all social housing.
- Establish an additional four-year plan to reduce energy consumption and the burden on tenants of social housing.
- Collect and publish indicators on the state of environmental and social inequalities in the Brussels-Capital Region; work carried out by the IBSA (Brussels Institute for Statistics and Analysis) with the participation of Brussels Environment, Perspective.Brussels in collaboration with the Health and Social Observatory.
- Integrating into sectoral public policies a reflection on identifying levers to reduce environmental and social inequalities.

- Take into account the energy efficiency of housing as a criterion in the debate on rental agreements in the Brussels Region.
- Grant bonuses or surcharges to landlords on condition that they comply with a lease agreement.
- Develop transition support tools segmented by target audience to take into account Brussels diversity and target the most vulnerable.
- Pay particular attention to the potential impact of renovation on the total cost of housing to ensure affordable access to quality housing for more precarious tenants. Allow for the revision of rents for rented dwellings in the Social Property Agency (ISA) if ambitious energy efficiency works are carried out.
- Provide long-term and innovative financing solutions, as well as guarantees and insurance, both for owners with low incomes and for co-properties.
- Adapt funding to the different occupancy regimes, the structure and duration of ownership, as well as the income levels of the owners; segmenting funding to cover the full range of financial capacities and skills of owners.
- Develop awareness, support and other facilitation measures on alternative forms of living (e.g. colocation, Kangaroo housing, etc.).
- Direct Brussels to the relay services on the ground, building on the local anchoring of existing actors (CPAS, Homegrade, Habitat Network, InforGazElec, etc.).
- Dedicate specific training to practitioners on the new mechanisms and assistance available as a result of the implementation of the PACE; the Centre for Social Support Energy (RBC's regional support service for frontline workers) will strengthen these dimensions in its tasks.
- Develop a strategy to support the networking of "social" and "environmental" grassroots actors in order to bring the actions of these actors together.
- Strengthen investment in construction related vocational training, EPB and circular economy.
- Inform and guide (future) business and project management professionals and foster a favourable business environment for construction workers to work in favourable conditions that are necessary to carry out quality works, in line with environmental objectives (sustainable renovation) and employment and social justice (working conditions and social benefits). The aim is also to strengthen closer cooperation between trades ("bouwteam") through the sharing of responsibilities for achieving common objectives. Bruxelles Environnement will work together with the other relevant administrations, including Bruxelles Economie Emploi.
- Speed up the process of integrating new education benchmarks in the construction sector to respond to the climate emergency and the need for skilled labour in new construction techniques and EPB legislation.
- Integrate the objectives and actions of PACE into the training and employment strategy developed by Construcity.brussels.
- Develop a just transition plan for jobs at risk in order to ensure retraining for workers in these sectors and training in jobs for the future in order to have enough skilled staff at the right time.
- To advocate to the Wallonia-Brussels Federation and the Flemish Community to set up a training programme for renovation/sustainable construction in schools of architecture.
- As regards the fight against social dumping, the work of the social partners to identify social clauses to be included in regional public procurement will continue within the Brupartners' working group. The purpose of these clauses will be to prevent social dumping in certain sectors of activity.
- Mobilise the expertise of View.brussels (formerly Actiris) and, where appropriate, the Employment

Training Centres, to produce evaluations and prospective studies on the professions of the future and the transition of the economy in order to develop training courses and guide them accordingly. It will also be necessary to refine the real job creation with regard to the transformation of trades and the destruction or transformation of jobs of the enterprises covered by this plan.

Adaptation

In line with the mandate of the National Climate Commission of 28 June 2021, a new National Adaptation Plan will be proposed by 2024, allowing for the continuation of the planned synergies between the different entities. The work is ongoing and its results may be taken into account in the preparation of the final updated national adaptation plan.

Federal State

Establish a coherent set of adaptation measures at federal level:

The federal contribution to the National Adaptation Plan was approved by the Council of Ministers on 28 October 2016 and includes 12 measures. The measures proposed as part of this contribution are designed to integrate the 'adaptation to climate change' component into two sectors: transport and crisis management. In addition, the plan also includes cross-cutting measures related to the coherent integration of adaptation across different areas/policies, awareness raising and understanding of challenges.

The federal contribution to the National Adaptation Plan covers a period of five years. In January 2019, the mid-term evaluation has already been published and includes the mid-term evaluation of the implementation of the federal contribution for the period 2016-2018. This overall assessment showed that only measure 1 has not been implemented. The other measures were implemented or were in the process of being implemented at that time. The final evaluation of the same plan showed that all measures had been implemented or started. This contribution was the first federal tool for adaptation planning, with targets limited to a small number of sectors, with a view to gradual improvement.

The National Adaptation Plan (2017-2020)¹⁸⁵ was approved by the National Climate Commission on 19 April 2017. It includes 11 national measures to strengthen cooperation and develop synergies between different governments (federal, regional) on adaptation.

The plan was implemented over the period 2017-2020, but some measures are of a continuous nature, or efforts continue for several years after the end of the plan. Some initiatives have been revised and included in the document *"Towards a climate-resilient society by 2050 – Federal adaptation measures 2023-2026"*¹⁸⁶.

Energy security in the context of the adaptation

In particular, the above-mentioned document contains a measure to assess the impact of climate change on security of supply and on energy transmission and distribution infrastructure, thus strengthening the energy sector's resilience to the risks posed by climate change. Using the parameters developed in the National Crisis Centre's Climate Change Impact Programme (NCCN). The NCCN will identify sensitive points in the energy sector. At a later stage, existing and possibly additional preventive measures may be developed on the basis of this evaluation, in close cooperation with relevant stakeholders. In addition to the sensitivities mapping, the concrete consequences for security of supply when one or more elements of the energy system are

¹⁸⁵ National Adaptation Plan 2017-2020 https://www.adapt2climate.be/wp-content/uploads/2020/09/NAP_FR.pdf

¹⁸⁶ Federal Adaptation Measures 2023-2026, FPS Health, Food Chain Safety and Environment DG Environment – Climate Change Service, 2023. <https://climat.be/doc/mesures-federales-adaptation-2023-2026.pdf>

affected by the identified extreme weather events will also be considered.

Other aspects of energy security that are not related to adaptation can be found in Chapters 2.3 and 3.3.

Nature-based solutions:

The federal adaptation package also includes initiatives focused on biodiversity. Nature restoration in the Belgian part of the North Sea: Several habitats are located in the North Sea of Belgium and are currently under severe pressure due to human disturbance.

Trawling is the main seabed disturbance activity in the Belgian part of the North Sea. Establishing seabed integrity protection areas within which the disturbance of the bottom by fishing is prohibited or very strict will give fragile nature a chance to recover and will also provide undisturbed space that is essential for the success of nature restoration projects. Maintaining and restoring the various components of the marine ecosystem and their interactions at local level is essential to safeguard a healthy ecosystem that can act as a buffer against the effects of climate change on a larger scale. This pilot project for the restoration of oyster beds, if successful, will be extended to a larger scale, thereby further promoting North Sea seabed biodiversity.

Other points of interest:

This new list of federal adaptation measures adds to the many other federal levers to make society more climate resilient. Adaptation measures have been identified and finalised in a federal adaptation working group composed of experts from the various federal administrations concerned. Each federal department has been invited to propose one or more measures within the framework of federal competences and in line with the European Adaptation Strategy. The measures have been grouped together in a consistent manner. This list of federal adaptation measures will be implemented in the period 2023-2026 and will be subject to two evaluations: at the end of 2024 (mid-term evaluation) and end of 2026 (final evaluation). A total of 28 measures are targeted in 8 policy areas: research, ecosystems and biodiversity, infrastructure, draft laws on natural resources, public health, risk and crisis management, international cooperation and awareness raising.

Flagship actions (description)

The development of a federal adaptation policy is based on the adoption of a coherent set of policies and measures in the different areas of federal competence concerned.

The main levers identified at federal level concern health, crisis management, scientific research and observation (climate services), energy, transport, social aspects, economy and finance, development cooperation, environment and the marine environment. The development of this coherent set of measures is based on a partnership between the various federal ministers and departments concerned, coordinated by the Environment Administration.

The new measures have been developed in line with European guidelines, the results of previous adaptation plans and the results of the study on the socio-economic impact of climate change in Belgium and the study on the effects of climate change on the health sector in Belgium¹⁸⁷.

BE: Implementation of the National Adaptation Plan and its updates

A National Adaptation Plan was adopted in 2017. This plan identifies specific adaptation measures implemented at national level for the period 2017-2020 in order to strengthen cooperation and develop

¹⁸⁷ In this context, Belgium's signature of the COP26 Health Programme, which aims to develop sustainable and low-carbon health systems, is relevant. See: <https://ukcop26.org/the-cop26-health-programme/>

synergies on adaptation between the different entities (federal level, regions).

A new National Adaptation Plan will be developed in 2023 to continue the planned synergies between the different entities.

Operationalisation (implementation)

This cross-cutting approach was implemented by the mobilisation of a federal working group, made up of experts from the various federal departments concerned, under the coordination of the Climate Service (FPS Public Health). The main task of this working group was to identify and select actions within the respective competences.

The final draft: “Towards a climate-resilient society in 2050 – Federal adaptation measures 2023-2026” was simply noted by the Council of Ministers on 03/03/2023 and published on 17/03/23.

Impact

The measures identified in the adaptation plan will not have a direct impact on greenhouse gases. In the identification of measures, the risk of ‘ill-adaptation’ has been taken into account in order to avoid that adaptation measures lead to increased vulnerability (e.g. by increasing greenhouse gas emissions).

Flemish Region

Flanders builds and connects green and blue infrastructure, consistently and throughout the country.

For the realisation of the green-blue infrastructure, we commit to a green-blue metamorphosis of our built nucleus and our infrastructure, where we design, develop and renovate to become climate resilient. The basic principles are:

- Greening and clearing, as foreseen in the Strategic Vision of the Space Policy Plan for Flanders ([https://omgeving.vlaanderen.be/beleidsplan-ruimte- Vlaanderen](https://omgeving.vlaanderen.be/beleidsplan-ruimte-Vlaanderen)).
- Delayed evacuation and maximum retention of (rain) water.
- Wetland parks and other green spaces.
- Reducing pressure on the sewage system.

Climate-resilient design requires an area-specific approach, heat-resistant, water and orientation, greening, conscious use of materials and improved air quality. With a new regulation on rainwater, we are increasing water collection, buffer capacity and infiltration facilities. We rely on innovative solutions in smart cities and municipalities, the transformation of subdivided neighbourhoods into sustainable, dynamic and liveable environments, climate-resilient business parks and climate-resilient gardens.

By the end of 2023, we will develop a vision and roadmap to maximise on-site infiltration and/or buffer and/or reuse of rainwater on and along regional roads. In doing so, our aim is also to unleash as much as possible.

Together with the local administrations, Flanders wants to include the clearing in its tenders for new projects and has developed the “Vlaanderen breekt uit” programme for this purpose.

We will tackle large heat islands, such as large car parks and squares, by requiring shading trees to be planted with sufficient space for their roots, while taking into account water infiltration and buffer capacity.

We use EPB regulation as a tool to support the resilience of buildings to heat. The EPB imposes energy performance requirements for buildings for the indoor climate. For the latter, ventilation and overheating

aspects are relevant. To reduce the risk of overheating, the overheating indicator must remain below a certain threshold.

In order to protect buildings from future heat episodes related to climate change and to adapt to them, the climate knowledge available in 2050 is included in research trips under the EPB methods. The extent to which standardisation can take into account local differences, such as heat islands and the presence of greenery in the environment, shall be investigated. The first steps consist of a study on adjusting the temperatures used in PEB standardisation and updating the overheating indicator.

It is important to note that Flanders will ensure that updating the EPB rules does not lead to an increase in energy consumption or greenhouse gas emissions. Climate change adaptation must always go hand in hand with climate change mitigation.

Availability and use of water

We aim to balance as much as possible the availability and use of water. Reduced and circular water use must increase water availability and make Flanders resistant during long periods of drought. To predict the expected increase in droughts and severe water shortages, we have included a Flemish water scarcity and drought risk management plan in the River Basin Management Plans 2022-2027. We therefore aim at the transition to a more robust water system and a shift towards a more sustainable use of water. Through strategic water supply planning, demand and demand for drinking water are met in a sustainable way, now and in the future. We improve monitoring by digitising it in depth and linking it to a governance model.

Water space according to water security and drought prevention

Sustainable and climate-resilient spatial development in Flanders is only possible by densifying and reducing additional land take and maximising the preservation of open spaces. The strategic vision of the Space Policy Plan for Flanders (BRV) includes the objective of reducing average additional daily land take to 0 ha by 2040.

This principle is now known as the 'bouwshift', with the aim of maximising the place given to coated spatial functions in existing land take, where they are well located. The efficiency of this space needs to be improved to reduce the pressure on open spaces. Developments in construction are shaped on the ground by regulatory adjustments in the framework of licensing policy and, at the same time, by planning (and other) initiatives aimed at neutralising poorly located supply (for housing, industry, etc.) in places where further development is not desirable.

At the same time, the rate of land take in open spaces must be reduced. We are developing area-based trajectories to reduce land take in flood areas by 20 % by 2050. In the 235 signal areas, high risk of river flooding, but also rainfall, Flanders is proactively looking for the best development perspective. The Flemish Government will neutralise approximately 1 600 ha of hard areas (signalling areas with no construction) in order to preserve them from any development. As far as possible, areas will be designed to make the surrounding environment more climate resilient and improve the quality of the local environment. In doing so, we rely on water storage to ensure maximum flood protection in inhabited downstream areas.

We optimise the role of valleys as climate resilient landscape features through small short-term water storage measures and restoring the natural functioning of the valleys as a sustainable and robust solution in the longer term. We acquire structures that are strategically poorly located according to the demolitions to be planned.

We implement the Flood Risk Management Plans, the Sigma Scheldt Plan, the Master Plan Kustveiligheid and other water management plans to ensure maximum security for the population. We have put in place comprehensive projects to generate space for water where necessary, during flood periods. We are taking

measures against erosion and to protect riverside areas.

Restoration and management of nature, forests and open spaces resilient to climate change

Ponds and lakes, wet meadows, wooded and non-wooded peatlands and (coastal) marshes, or shortened wetlands, are under strong pressure worldwide. Over the last 50 to 60 years, Flanders has lost 75 % of its wetlands. Of the 244 000 ha of wetlands that still existed in the 1950s, there are now only 68 000 ha left. To put an end to this negative trend, the Flemish Government will develop and implement a multiannual hydrological restoration programme in valleys and natural wetlands, focusing on both quantity and quality. By 2030, the wetland programme will have restored 20 000 hectares of wetlands or improved the quality of existing wetlands. Wetland restoration has much wider benefits than climate change adaptation and biodiversity. It also benefits biodiversity, water resources, water supply and infiltration, climate change mitigation through the storage of CO₂ in soil, human health and, socioeconomic, tourism and ecosystem services.

Peat ecosystems deserve special attention and protection due to their role in climate change adaptation and mitigation. The Flemish Authority is committed to restoring peatlands and creating new peatlands. As part of the strict protection of peat soils as a valuable buffer for water and carbon, Flanders is currently ordering a mapping of peatlands. A policy framework is also being developed with measures to better protect and restore peatlands successfully. For the coastal dunes complex, we are also committed to green and climate-friendly management.

The forest extension plan 'Meer bos in Vlaanderen!' aims to secure 4 000 ha of additional forests by 2024 and the planting of 10 000 ha of additional forests by 2030. The plan aims to expand existing forest complexes, strengthen blue green networks and develop new forests in urbanised areas. In addition to biodiversity, new forests should also provide more services, including new services based on climate change adaptation and mitigation (carbon storage), be more accessible and close to green spaces, and provide a healthier living environment. We are also making maximum efforts to tackle deforestation. It is important to protect our forests and prevent further deforestation. It is certain that old-growth forests have very high levels of aerial and underground carbon stocks, as well as high biodiversity, and therefore deserve particular attention.

We also provide climate-friendly management of Flemish rivers and specific ecosystems such as heathlands, pastures, marshes and open waters. We accelerate the management of our natural and forest areas to make them climate resilient, based on the following principles:

- Creating a robust nature by broadening and connecting natural nuclei, protecting vulnerable nature, promoting the expansion of species according to the climate, and ensuring appropriate forest and nature management
- Create good environmental conditions.
- Creating diversified ecosystems
- Prevent or mitigate the impact of natural disasters.

The Flemish Action Programme Klimaataadaptatie Landbouw 2030 is intended to develop and facilitate climate adaptation actions around a number of key pillars by 2030, in dialogue with the agricultural sector:

- Water: damage caused by floods or prolonged droughts must be limited, while leaving enough water available for agriculture.
- Ground: soil is a crucial factor in making agriculture climate resilient. Improving soil quality and structure makes it possible to obtain soil that preserves water and supports crops during extreme weather events. Organic matter is important for a good adaptive soil that allows better infiltration and storage of water, reducing flooding and erosion. Soil organic matter also contributes to soil

carbon sequestration and thus to mitigation (LULUCF). The use of precision farming can minimise soil compaction.

- Crops and cropping systems: select resilient planting and cultivation systems, climate-resistant crops through conventional and new breeding techniques, including mixed crops.
- Breeding: heat and drought cause thermal stress in animals. Offering shelter with one or more trees, hedges or wooded borders on grasslands, among others, allows livestock and other farmed animals to shade.
- Support instruments: support for knowledge sharing, information, education, innovative investments and other incentives allow farmers to adapt their business activities to tackle the effects of climate change.

Health policy

Climate change has a direct and indirect impact on public health. We need to prepare for the different challenges that healthcare faces, both in terms of health policy, for example because of prolonged heat, disasters or the reappearance of new diseases and alien (invasive) species in Europe, and in terms of health infrastructure, where it is important that climate-resilient and future-proof healthcare facilities are important. We rely on:

- Developing climate-resilient healthcare
- Collection, monitoring and surveillance of health data
- Anticipation of (new) vectors and (new) climate-related diseases
- Prevention, including through the development of healthy public spaces and environments.

Collaboration and coordination

Good collaboration and coordination are crucial for developing a climate-resilient Flanders. To this end, efforts are being made to foster the exchange of knowledge between different administrations and good collaboration with the different levels of administration and organisations active in this field. In particular, we commit to developing a learning network, climate adaptation tools, a knowledge and innovation programme for water security and a web platform 'Klimaatbestendig Vlaanderen' (Climate Resilient Flanders) linked to the existing Klimaatportaal.

We are contributing to the improvement of disaster warning systems and existing crisis plans, as well as to a post-disaster clearance and reconstruction plan.

Local governments are important partners. Climate adaptation tools developed are an important support for local administrations and civil society actors. On 4 June 2021, the Flemish Government approved the local energy and climate pact (lokaal Energie- en Klimaatpact – LEKP) with local administrations, which includes targets for local authorities in terms of clearing, greening, etc. (see transversal chapter):

We are also engaged in research and monitoring of climate resilience and initiatives outlined in the Flemish Climate Change Adaptation Plan.

Region Walloon

The multidisciplinary study '*Diagnostic vulnerabilities. Increasing Walloon resilience through adaptation to climate change. Scenarios, impacts and measures*', which started in May 2023, will consist of 5 components:

- Part 1: Evaluation of the measures and tools put in place so far and benchmarking existing initiatives in Wallonia and internationally
- Part 2: Update of climate projections for Wallonia

- Part 3: Analysis of the risks and impacts of climate change and vulnerability in Wallonia
- Part 4: Identification and proposal of adaptation actions and levers
- Part 5: Benchmarking funding.

The avenues for reflection identified at this stage will be aimed in particular at:

1. Reduce vulnerability and exposure to risks;
2. Increase the capacity for forecasting and action on extreme events in a long-term reflection;
3. Implement civil protection and early warning systems;
4. Identify and exploit the benefits of climate change.
5. Identify possible ways of financing and accompanying measures

A series of policy levers have been identified through the reports and the broad participatory process put in place as part of the PACE update.

Brussels Capital Region

The Government also undertakes, within the framework of its PACE, to:

- When choosing urbanisation, ensure that soil quality is taken into account and that, wherever possible, good soil quality is used: the aim is to use climate change mitigation as much as possible, without compromising other priority urban development issues.
- Promote the restoration of degraded soils in open (unbuilt) areas.
- Prioritise and promote construction/densification on already sealed soils in order to preserve as much as possible unartificial land and, where possible, impose soil degradation in order to restore/optimize their ecosystem services.
- Integrate the “soil quality” criterion in the development of urban projects (in particular planning and impact assessments) in order to preferably artificial soils of lower quality and to preserve good soil quality.
- Improve soil management practices with a view to preserving or enhancing soil organic matter and moisture content and protecting them from erosion.
- Adapt regional soil legislation to include climate challenges.
- Have integrated rainwater management (reuse and re-infiltration in situ), protection of existing buildings and design of new buildings adapted to flood hazards.
- Integrate climate and thermal comfort into the building as soon as the building is planned and sketched.
- In collaboration between Brussels Environment and Urban, raise awareness and train those involved in spatial planning and urban planning (project promoters, urban planners, soil management experts, architects, etc.) on climate change adaptation issues and measures to improve urban resilience to its effects.
- In collaboration between Bruxelles Environnement, Perspective.Brussels and Urban, analyse existing instruments on spatial planning, urban planning and the environment in order to assess whether they contribute to maintaining and strengthening the resilience of our territory to climate change and, where appropriate, propose improvements.
- Integrating the challenges linked to the effects of climate change into the PRAS (Regional Plan for the Affection of the Sol) currently being revised, in accordance with the commitments made in the NECP and the opening decree for.

- Preserving as far as possible natural and permeable areas of high biological value and living and quality soils in accordance with the map of the Brussels Ecological Network and taking into account the indications of the Biological Evaluation Card and the IQSB (Brussels Sols Quality Index).
- Better take account of the biological value of the spaces by drawing on the green network/mesh size map, which may lead to proposals for changes in assignment and/or content requirements, as well as procedural requirements.
- Promote continuities and connections between green areas and large open spaces (not built) linked to the periphery (Flemish and Walloon), in particular via the main structural axes.
- Create new green spaces in the central and dense part of the BCR, identified as a priority area for greening in the PRDD, as well as in other publicly accessible green areas.
- Increase vegetation and open soil in the interiors of the island, in conjunction with the RRU.
- Systematically include in the environmental assessments of a project or a spatial plan or programme an analysis of the vulnerability of the project or territory concerned to the effects and risks of climate change.
- Integrate the challenges of adaptation to the effects of climate change into the reform of the RRU to put in place urban planning rules conducive, inter alia, to combating the formation of urban heat islands, the development of a broiler network, integrated rainwater management, the preservation of living and quality soil, the development of biodiversity, vegetation, quality green spaces, urban agriculture, and the development of energy production from renewable sources.
- Continue to implement the macro vision for strengthening the network of open spaces in Brussels, approved by the Government, via the 'OPEN Brussels' market centre currently being set up.
- Integrating the challenges of adaptation to climate change into major urban projects through the use of the Sustainable Quartiers Quartiers Referential, primarily by regional public urban development operators (cf. Government Decision of 20/05/2020) and gradually by private operators and local public authorities.
- Continue and increase the funding of projects meeting the objectives of adapting to the impacts of climate change, in particular in the Climate Action call for projects for municipalities and CPAS, and launch new calls for similar projects for other target audiences.
- Align support schemes to enhance ecosystem services and accelerate the implementation of nature-based adaptation solutions in soil, water and nature issues with a view to improving urban resilience.
- Promote the use of school courses as the vegetation nuclei of neighbourhoods to counter the urban heat island effect. The pilot project set up by the Region (operation Re-Creation) will be evaluated and, where appropriate, continued with a view to gradually targeting all school courses located in areas with deficiencies in green spaces, priority areas for greening or in areas particularly affected by the phenomenon of urban heat islands.
- As regards the resilience of energy transmission and distribution networks, through:
 - Risk Preparedness Plan (RPP) for the electricity sector (under preparation); the plan shall assess the risks related to the security of electricity supply, identify electricity crisis scenarios and identify existing and envisaged measures to prevent, prepare and manage electricity crises at both national and regional level; it takes into account the risks associated with extreme weather conditions and addresses the issue of the resilience of infrastructure to those risks.
 - Assessment of the impact of climate change on the security supply, energy transmission and distribution infrastructure.
 - The PGE provides for protective measures in respect of certain sensitive and/or risky infrastructures or installations located in areas of high flood hazard.
- Adaptation measures to reduce the vulnerabilities of this network.

- As regards the resilience of transport networks, the government commits to:
 - Identify transport infrastructure located in flood hazard zones on the regional flood risk maps.
 - Accompanying stakeholders in developing the skills needed for the implementation of integrated rainwater management and all other climate resilience measures related to water management, from design to maintenance (draft Water Management Plan, Axis 5) is aimed in particular at developers and transport infrastructure managers, as well as the professional sector (entrepreneurs, architects and landscape architects, design offices, etc.).
 - Determination of the minimum safety water levels for navigation on the Canal and port infrastructure and the adoption of measures to ensure these levels.
 - The integration of climate challenges by STIB into the management of its network, particularly during heatwave periods and the benchmark for the construction and sustainable renovation of Metro stations established in collaboration with Bruxelles Mobilité, which aims in particular to ensure thermal comfort at stations and stops (protection against wind and shading), and to reduce flood risks.
- As regards the resilience of health infrastructure:
 - The study of the impact of climate change on the health care system in Belgium carried out in July 2021 includes an inventory and assessment of existing measures to improve the resilience of health care systems in Belgium to the effects of climate change and recommendations to strengthen it; it includes a component on health infrastructure; consideration is under way to incorporate some of its recommendations into the next National Adaptation Plan and the forthcoming National Health and Environment Action Plan (NEHAP)’.
 - Identification of hospitals and resting homes located in flood hazard areas on the regional flood risk maps’.
 - Adaptation of sensitive infrastructure (hospitals, nurseries, etc.) located in flood areas
 - Taking into account their need for water supply during droughts, through water resource management measures aimed at providing a comprehensive response to the risks associated with water scarcity and increased water needs during periods of drought and heatwave.
- Clear and as comprehensive a vision as possible¹⁸⁸ of the vulnerabilities of critical infrastructure to climate change and of all adaptation actions/policies put in place by their managers, in collaboration with Brussels Environment and Brussels Prevention and Security. Where necessary, encourage critical infrastructure managers to carry out such an analysis and strengthen their adaptation actions.
- Ensure that management contracts, investment plans and risk/crisis prevention and management plans of the relevant bodies adequately integrate climate change adaptation issues.
- Identify any additional measures that the Government could undertake to strengthen the resilience of critical infrastructure, after having identified the needs of the sectors concerned.
- Implementation in the next National Plan of Adaptation of the assessment of the impact of climate change on security of supply, energy transmission and distribution infrastructure.
- Continue and strengthen the Good Food Strategy – public policy for a sustainable Brussels food system.

¹⁸⁸https://euc-word-edit.officeapps.live.com/we/wordeditorframe.aspx?ui=fr%2DFR&rs=nl%2DBE&wopisrc=https%3A%2F%2Fcloudbelgium.sharepoint.com%2Fsites%2FFSECO-ENOVER-Concere%2F_vti_bin%2Fwopi.ashx%2Ffiles%2Fa75f2ddd012845f08334112e89665715&wdenableroaming=1&MSCC=1&HID=6700BFA0—DOCB-6000-AD75—6D222A699EF6&wdorigin=ItemsView&wdhostclicktime=1687349208191&jsapi=1&jsapiver=v1&newsession=1&corrid=0b4c53d6-f7a6-4b57-95ad-0aa7329b57&usid=2b0c4d53-f6a7-6b4-57ad—0aa7329b57b2&sftc=1&cac=1&MTF=1&SFP=1&instantedit=1&wopicomplete=1&wdredirectionreason=Unified_SingleFlush&rct=Normal&ctp=LeastProtected%22%20\l%20%22_ftn1

- The Region's comprehensive safety and prevention plan adopted in 2021, which introduces an integrated approach to security and develops a crisis management and resilience component.
- Procedure for restricting access to regional green areas and the Soignes forest in the event of large winds¹⁸⁹ and communal storm procedures.
- Fire response plan specific to the Soignes Forest, which was developed in collaboration with SIAMU in 2011 and updated in 2020; fire risks are also taken into account as part of its management plan; however, for other regional wooded areas, these risks are not systematically assessed.
- Assess the fire risks of regional green areas and, more specifically, have case-by-case assessments to be included in the management plans for green areas.¹⁹⁰
- Implement, in collaboration between Brussels Security Prevention, Brussels Mobility, SITB, Bruxelles Environnement, police areas and the municipalities concerned, a 'Tempête Plan' organising the closure of the Soignes Forest and alternative mobility solutions during extreme windfall events.
- Carry out a communication and awareness-raising policy on the effects of high heat and district heat on health and on how to protect themselves from them;
 - Develop a new health risk management plan through the departments of the Council meeting to deal with the various aspects of a health crisis;
 - Regularly assess and map the performance of services ecosystems at regional level;
 - Strengthen indicators of sealing and land take up regional (percentage of open land, assessment of CBS + on a large scale, etc.) and their monitoring, and to this end systematically centralise the relevant data provided by urban planning permits;
 - To strengthen regional vegetation indicators (vegetation rates, canopy index, canopy diversity and tree species distribution) and their monitoring;
 - Enhance the monitoring of areas and populations in publicly accessible green spaces with regard to their location and area, as well as the number, density and socio-economic characteristics of the population concerned;
 - Cartographie at the level of municipalities and neighbourhoods, by type of risk, according to

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- their degree of vulnerability, vulnerable institutions and populations to prioritise actions, along the lines of the Klimaatportaal site developed by the Flemish Region;
 - Strengthening and monitoring of soil quality indicators (including moisture content) at regional level;
 - Update the mapping of urban heat/freshness islands); if necessary, complete the MRI measurement network (temperature, humidity, winds, pressure and insolvency);
 - Assessing the needs for the establishment of monitoring emerging biological risks at regional level and, where appropriate, setting up such monitoring;
- The aim of the PGE 2022-2027 project is to address all the challenges of water management in the context of climate change.
- With regard to the Nature Plan, the Government undertakes to:
 - The conservation of fauna and flora, through monitoring and monitoring measures, better management of coexistence between humans and certain species which may pose problems for nature conservation, the implementation of the pollinator strategy, and measures for the prevention and management of invasive alien species whose arrival and dispersion can be fostered by climate change.
 - Protecting and reconnecting natural habitats in areas of high biological value, nature and forest reserves and Natura 2000 sites these steps help to maintain and improve services. ecosystems brought about by biodiversity and increasing ecosystem resilience, both to climatic hazards and other causes of species decline.
 - Vegetation and nature development in public spaces, buildings and their surroundings, as well as the preservation and development of the canopy (tree cover); these measures help to address the risks associated with the urban heat island, flooding or air quality degradation (increased also in the event of a heat wave).
 - The establishment of ecological management of green areas, contributing to the enhancement of biodiversity and the resilience of plantations through better planning choices and the introduction of multifunctional and differentiated management of these areas and their maintenance, in particular with regard to their possible asset classification; these management modes take account of climate change.
 - Operational implementation of the Brussels ecological network, which enhances the ecological functionality of green and blue mesh sizes, in particular through the provision of habitats and resources for wildlife; this network makes a significant contribution to the development of a brokers' network within the Region.
 - Implementation of concrete actions to plant the city (recreation operation, aiming at the vegetation of recreation courses, Brussels Mobility Plan, aiming at the vegetation of regional roads, financial support for communal and CPAS actions, etc.);
- Optimising the management of the regional canopy and anticipating its evolution and vulnerabilities, through:
 - the creation of a unified regional tree cadastre, which integrates the heritage of the various public authorities in order to develop a quantifiable and qualitative view of the canopy on the public domain.
 - the establishment of a system for assessing the life expectancy of trees in good condition in order to be able to anticipate local declines and plan their replacement.
 - setting objectives for the strategic diversification of canopy's constituent species to improve its resilience and reduce possible local negative health impacts (allergenic pollen, etc.)
- Optimising the management of the regional canopy and anticipating its evolution and vulnerabilities, through:
 - the creation of a unified regional tree cadastre, which integrates the heritage of the various

- public authorities in order to develop a quantifiable and qualitative view of the canopy on the public domain.
 - the establishment of a system for assessing the life expectancy of trees in good condition in order to be able to anticipate local declines and plan their replacement.
 - The setting of objectives for the strategic diversification of canopeia's constituent species to improve its resilience and reduce possible local negative health impacts (allergenic pollen, etc.).
- Assess the vulnerability of regional green spaces (other than the Soignes forest) to climate change and take this into account in the green space management plans:
 - Priority is given to large green areas and the trees they contain, as the tree heritage requires more anticipatory management than herbaceous vegetation.
 - The assessment will cover the vulnerability to extreme weather events, gradual changes in environmental conditions and phenoseasons (earlier flowering, extensive bird nesting, flower-pollinator shifts, etc.), and to the risk of fire, and take into account social criteria (e.g. increased usage pressure, increased population density, change in time slots for green areas, etc.).
 - Manage towards a mixture of species more tolerant to the climatic conditions expected at the end of the century.
 - Stimulate local logging from the Soignes forest through the ongoing revision of the Forest Code.
 - Update the PRAS to integrate multi-criteria climate objectives into the general objectives and provisions on green zones, urban business areas (ZEMU), (strong) mixity areas, areas of regional interest (ZIR), areas of regional interest with delayed development (IRAD), residential areas, and requirements 21 to 28.
 - Planning climate-compatible priority development hubs.
 - Finalise the Regional Urban Planning Regulations (RRU).
 - Mobilise the Be Sustainable benchmark to improve sustainability aspects in urban projects at neighbourhood level.
 - Promote and promote the use of nature-based adaptation solutions (NBS) in spatial plans, urban development projects at various scales (parcels, streets, public spaces, neighbourhoods, etc.) and urban renewal programmes.

3.1. Decarbonisation dimension

3.1.1. GHG emissions and removals

1. *Policies and measures to achieve the targets set under Regulation (EU) 2018/842, referred to in Section 2.1.1, and policies and measures to comply with Regulation (EU) 2018/841, for all key emitting sectors and sectors where removals need to be enhanced, in light of the long-term objective of moving towards a low-emission economy with a balance between emissions and removals, in line with the Paris Agreement.*

Cross-cutting policies and measures By definition, cross-cutting policies and measures involve a range of sectors.

WFP adopted by governments at all levels of competence are based on the following principles:

Stronger support for local climate policy

It focuses on practical support and guidance, e.g. smart city, mobilising local energy investments, co-financing projects and improving multi-level communication and governance, while respecting local self-government. It is based on the voluntary commitment of municipalities, in particular as regards the Covenant of Mayors. This is a European initiative enabling local and regional authorities to commit to reducing their greenhouse gas emissions by 55 % by 2030.

Improving climate governance and optimising the National Climate Commission

The competent authorities shall allocate sufficient resources for the implementation of the measures set out in this plan and shall ensure that their administrations are duly involved in the preparation of the final plan and in the implementation of the plan.

Step up the exemplary role of public authorities in the energy transition, including through calls for tender

Through their sustainable public procurement, public authorities give the necessary impetus to the market (greening of vehicle fleets, procurement in line with circular economy principles, choice of award criteria, etc.)

*Flemish Region*Climate change mitigation and spatial planning

On 20/07/2018, the Flemish Government approved the Strategic Vision of the Space Policy Plan for Flanders. On the basis of the approved Strategic Vision, we are developing a Space Policy Plan for Flanders (Beleidsplan Ruimte Vlaanderen – BRV) that shapes the future space policy. The principles and objectives of the plan support the achievement of the Flemish climate and energy objectives.

The strategic vision of the BRV provides an integrated and ambitious response to demographic, economic, mobility, environmental, natural, biodiversity, climate, energy, raw materials and food challenges. The BRV must create a transitional framework for construction that provides opportunities for densification in all municipalities that will reduce the pressure on open spaces to 0 ha/day by 2040. It is crucial to involve civil society actors that support these objectives and want to contribute to the achievement of the objectives of the BRV. Since the Flemish Authority cannot do so alone, it is a task for all the Flemings. It is not only citizens and businesses that need to be convinced, but also local administrations that are indispensable for this transition.

Smart use of space in the right place

A sustainable space policy provides space for all social functions. “Smart growth” is stimulated by focusing on qualitative densification in well-located locations. New, high-quality spatial developments ensure a healthy and attractive living and working environment. Space developments therefore take into account the proximity of transport exchangers and infrastructure, but also their location in relation to possible nuisances, as well as open spaces and green and blue frames. Just as we are denying our built environment, we also need to densify the green and blue mesh.

Densifying and focusing on urban development does not mean that opportunities can only be exploited within the Vlaamse ruit (Flemish losange) or cities: we also need to strengthen our rural nuclei and thus fight further fragmentation.

Multifunctional and adaptive use (not only in space, but also time) and the interlinking of space, functions and buildings, where possible and desirable, will be encouraged without compromising the main use or needs of the main user. Efforts are being made to qualitatively transform places with high potential for development

(e.g. places that are well located but underused due to ageing).

Through qualitative and innovative densifications, multi-functional and temporal use of space, reuse of buildings and recovery of underutilised land, we increase spatial efficiency and slow down the increase in land take.

Improving the quality of the environment in an integrated and innovative way

Good quality of life is important. The ten basic qualities of the BRV are important for all space developments. Any development or growth must ensure a healthy and attractive living environment. Such a living environment is designed to facilitate movement, is located close to an accessible green space with parts of water and provides peace oasis, good air quality, experience of nature, space for food production, attention to thermal stress. In line with the basic quality of living together in an inclusive way, we design space and our environment in such a way that all groups in society have access to greenery, public space and basic facilities.

Solid public space

We keep open spaces as far as possible. In open spaces, we plan the necessary space for natural systems, climate change mitigation and adaptation, water storage, agriculture, recreation and relaxation. We combine this multifunctionality to the extent possible, without compromising the main purpose and separating it if necessary (e.g. large-scale professional farming, large units of a vulnerable nature). In addition to strategic areas for agriculture, nature and water, open spaces include landscape areas designed and used in a multifunctional way. We foresee a specific allocation for such forms of interlocking functions in open spaces. The physical system and ecosystem services structure the choices for the functions of open spaces. The areas of strong nature, forests and valleys that form the backbone of a larger and functional green and blue mesh extending to the centre of villages and cities will be strengthened. The aim is to green the built fabric: green roofs, green facades, neighbourhood gardens and playgrounds, etc. contribute to a healthy living environment that adapts to climate change.

The trend towards increasing coatings in open spaces is turning into an annual structural reduction in coatings.

These principles are important for carbon storage (see LULUCF chapter), climate resilience (water management), for reducing energy demand in buildings (intensification) and for limiting transport demand. Giving prominence to renewable energy (wind energy) and making the landscape resilient to climate change (space for green and blue frames) are also relevant. They also play a role in the modal shift (towards collective transport and cycling/walking for passenger transport and to the inland waterway network for freight transport) and managing mobility demand (proximity to infrastructure).

Dynamic and coherent (open) spaces: space for agriculture, forest, nature and water in a functional and coherent set, green and blue frames at fine scales, dynamic planning that ensures food production, biodiversity, infiltration into soil and storm water storage, are relevant to climate resilience and carbon storage.

In addition to space policy at all levels of government, climate policy and spatial planning measures are planned:

1. The Flemish Authority has the explicit task of setting up a mechanism to monitor the strategic vision, operational policy, use and assignments. This monitoring will assess whether space's contribution to climate change mitigation or adaptation is moving in the right direction and whether it occurs fast enough to adequately contribute to climate and energy objectives over the period 2021-2030. The Space Policy Plan for Flanders provides for a monitoring system
2. We remove regulatory barriers, outdated regulations or administrative barriers that hamper smart and flexible use of space and move towards 231

innovative forms of living and work. We stimulate impulse projects that involve new space outputs that increase spatial performance and pay attention to interlocking functions, re-use, temporal use of space, climate change mitigation and adaptation, and improved mobility and landscape quality.

Environmentally responsible consumption

We want to do the utmost to continue improving our quality of life, while significantly reducing our ecological footprint. More and more human beings want to live in comfort, eat well, move easily, relax, etc. In order to be able to grow, regions with a much lower quality of life than our own also need raw materials. The use and treatment of raw materials, materials and associated natural resources are increasing pressure on the climate, depletion of raw material reserves, damage to nature, pollution and waste generation. In addition to another more sustainable and circular production system, a more sustainable consumption system is also indispensable to reverse the trend. The aim is to improve the quality of life of all, but with a lower environmental impact. The categories of consumption that have the greatest impact on the environment are mobility, housing and food.

The impact of consumption on the climate and the environment is calculated on the basis of the ecological footprint. If we want to reduce our environmental impact, we also need to reduce and change our consumption, in parallel with technological solutions and production efficiency gains. This is equally true for indirect emissions, i.e. hidden emissions in the products we consume, which result from our consumption patterns. These indirect emissions can account for up to 88 % of the total environmental impact. Communicating understandable and action-oriented policy perspectives to encourage environmentally friendly consumption deserves priority, including in the context of European initiatives such as PEF, which allows the Flemish to take this into account when purchasing it.

Meat consumption in Belgium decreased by 22 % between 2005 and 2016, representing an average decrease of 1.3 kg per capita per year. In general, surveys show that people are ready to consume more environmentally-friendly products, but this does not always lead to a de facto responsible purchasing behaviour.

The weight of habits, inadequate supply and other factors also influence consumption behaviour. We want to work on this gap between will and effective behaviour by maximising behavioural knowledge. By focusing on alternative consumption patterns, reducing consumption and re-consumption, we are moving towards a more environmentally friendly mode of consumption.

We achieve an environmentally-friendly way of consumption that remains within the limits of the planet's ecological capacity while taking into account the social and economic impact when purchasing, using and disposing of products and services. This means that the consumer no longer buys certain goods/services, or in smaller quantities. This also means that they will be replaced (in due time) by (more) environmentally responsible alternatives, and that reuse and repair will be more involved. In addition, alternative forms of consumption – such as the sharing and replacement of products by services are increasingly widespread. This trend is part of the wider product cycle, where cycles are the norm.

Food policy measures

- Flemish Food Strategy

Flanders is committed to joining forces from different policy areas and stakeholders to create a coherent food policy. The Agriculture and Fisheries Department has therefore called for a food coalition to define and disseminate a food strategy. This coalition is made up of organisations from the agri-food chain, research, civil society and politics. A large participatory journey was taken with these partners. The result is the Flemish Food Strategy, GO4Food, launched on 29 November 2022.

The Flemish food strategy is based on four strategic pillars, inspired by the FOOD2030 European Research Framework:

- Healthy and Sustainable Diet for All.
- Food system within ecological limits.
- Everything to achieve a resilient food economy.
- Food binds farmers to citizens.

Under these four strategic pillars, a roadmap has been developed, comprising 19 strategic objectives and 98 avenues for work.¹⁹¹ For the strategic pillar 'Food system within ecological limits' in particular, the policy objectives are climate-oriented: an accelerated transition to a circular food system, the protection of the environment, soil, biodiversity and animal welfare, a climate neutral and intelligent food system, the minimisation of food losses along the chain, the optimal use of food residue flows and more sustainable and diversified protein production and consumption. The options for the latter strategic objective are described in the Flemish protein strategy (see below).

- Flemish protein strategy and programme (Vlaamse eiwitstrategie en eiwitprogramma)

Protein sources such as legumes are part of a healthy and environmentally-friendly diet, and their local production makes us less dependent on imported protein sources for food and feed, such as soya. In addition, livestock production is taking further sustainability measures to reduce the negative effects of animal protein production (and consumption) and enhance positive effects, such as carbon storage on grasslands and the valorisation of by-products.

The Flemish protein strategy 2021-2030 (Flemish protein strategy) was launched on 22 February 2021. This protein strategy differs from previous action plans on alternative protein sources, on the one hand, by broadening the focus on animal feed to food and, on the other hand, by extending the focus on production to production-consumption.

This protein strategy was implemented in 2022 by the protein action programme 2022.

- Reducing food losses from producer to consumer

In Flanders, total residual flows from the food chain are estimated at 3,5 million tonnes per year (2015). This concerns both food losses (edible) and secondary (inedible) flows. Three quarters (74 %) of residual flows from the food chain are unavoidable side flows. In 2015, only one quarter (26 %) of residual flows from the food chain were food losses. Flemish agri-food (agriculture + food industry) accounts for 80 % of residual flows from the food chain and 61 % of food losses. Depending on the case, secondary flows can be usefully used in animal feed, industry, composting and renewable energy. 92 % of the flows are currently recovered in animal feed, composting and energy. Agriculture and the food industry obtain high labels in terms of value¹⁹², so the value of residual flows from the food chain as feed or soil improver products is intrinsically linked to their commercial management.

Intermediate monitoring (2019) provides an overview of the effectiveness of the agri-food chain in dealing with food raw materials in 2017.

The Circular Actieplan Voedselverlies en biomassa (rest) stromen circulair 2021-2025 (Action Plan on food losses and residual biomass flows) builds on the achievements and challenges of the Ketenroadmap Voedselverlies 2015-2020 (Food Loss Chain Roadmap 2015-2020) and the Actieplan Duurzaam beheer van

¹⁹¹<https://lv.vlaanderen.be/beleid/vlaamse-kost-voedselstrategie>

¹⁹²Vlaams Ketenplatform Voedselverlies (Flemish Platform Food Pertes). Residual flows from the food chain and food losses: prevention and valorisation. Monitoring Vlaanderen 2015, 2017.

biomassa (rest) stromen 2015-2020 (Action Plan on the sustainable management of (residual) biomass flows 2015-2020). The new action plan was approved by the Flemish Government on 23 April 2021.

The Action Plan is structured around three material cycles: (1) (residual) food flows from producer to consumer, (2) (residual) biomass flows generated by the management of green spaces, nature, forests and landscapes, and (3) (residual) timber flows from industry and households.

The three power lines at the heart of this action plan follow the hierarchy of materials and the cascading principle: (1) more prevention, less losses, (2) better sorting and collection and (3) better recovery.

- Develop food surplus distribution platforms and food hubs to combat food losses.

We encourage the development of a network of distribution platforms and food hubs. Distribution platforms pool supply and demand for food surpluses in a given region and organise the logistics of these flows. In food hubs, surpluses are transformed into new food products and then distributed.

- Green Deals' conclusion

By concluding Green Deals between the Flemish Authority and businesses and sectors, ambitious projects on topics such as water, food, mobility and the circular economy can be realised. These are voluntary and ambitious agreements between companies, organisations and the government to jointly implement sustainable actions in the short term (around three to four years).

The following Green Deals 193 are currently being implemented:

- Green Deal Packaged;
- Green Deal brewers;
- Green Deal lighter urban logistics;
- Green Deal Healthcare;
- Green Deal The change of proteins in our plate;
- Green Deal Climate friendly refrigeration;
- Green Deal Natural Gardens;
- Green Deal Sports Domains;

In 2023, the following Green Deals are also in preparation: (1) green Deal Inland Navigation, (2) Green Deal Shared Mobility in the residential environment and (3) Green Deal rental and sharing.¹⁹⁴

Region Walloon

Achieving the objectives requires the activation of both technical, legal, administrative and technological solutions, as well as incentives and support for societal change. The scale of the necessary transformations requires a change of direction or substantial reorientation at many levels.

In addition to technical and regulatory measures, this plan contains a large number of **so-called accompanying measures**. This involves both financial support for the various actors (households, businesses, associations, public authorities, etc.) and awareness-raising, communication and information measures differentiated according to the public and the issues at stake. For example: bonus for the removal of fuel oil tanks to facilitate change towards a renewable heating system, strengthening energy advisory services for citizens, specific

¹⁹³ <https://omgeving.vlaanderen.be/nl/wat-zijn-green-deals>

The following Green¹⁹⁴ Deals have since been concluded: Green Deal Bedrijven en biodiversiteit, Green Deal Circulair aankopen, Green Deal Circulair Bouwen, Green Deal Gedeelde mobiliteit, and Green Deal Huishoudelijke houtverwarming.

support for households in poverty through grassroots relay actors, support for the renovation of public buildings and non-profit buildings, strengthening of support structures for the energy transition of businesses, networking of circular economy projects, support for maintaining and converting to organic farming, ensuring that the TEC is almost free of charge for the 18-24 year olds, the age of 65 and + and the beneficiaries of the increased intervention, aid for the purchase of bicycles, simplification of energy and climate support mechanisms granted to municipalities, etc. These measures and a large number of others are detailed in all sections of this chapter.

These measures are sometimes prerequisites, sometimes amplifiers or accelerators of more technical measures. Many of these are either already in the process of being implemented or provided for in other Walloon plans and policies. For new actions, which run over several legislatures, the budgetary impact will be confirmed when they are operational. In all cases where possible, **diversification of funding methods and sources** will be sought.

Articulation with other levels of government

In various areas, the implementation of a series of actions depends partly or entirely on the municipal level. All the measures concerned are always designed **with due regard for municipal autonomy**.

In addition, several federal fields of **action are mentioned in the text**. Without being exhaustive, federal policies and measures are mentioned when their relationship with the regional measures envisaged in the chapter is particularly significant.

Methodological details

It is essential to recall **that measures act very rarely in a “silos” manner**. For example, action on modal shifts has an impact on spatial planning, as can be seen throughout Europe, with the development of public transport. The same applies to the transport of goods or the relocation of service activities. It is therefore extremely complex, if not dangerous, to isolate by measure the direct effects on greenhouse gas emissions. The mere addition of individual effects does not make it possible to determine with certainty an impact in terms of GHG. In addition, a series of accompanying measures, although essential, have an amplifying or accelerating effect, but difficult to quantify. The evaluation should therefore focus on groups of measures, or even a sectoral approach, taking into account the various interactions between the levers activated.

For each section of this chapter, the different **policy levers have been grouped under different measures and, where relevant, also under strategic axes**. The text presents the general intentions and provides elements of description, contextualisation and objectivation of the actions.

The actions themselves are also summarised in each section in the form of a table worded as follows:

Nr identifying the action	Brief descriptive from the action	Status of the action	Possible source of the action

The **status of the action** refers to four categories:

1. **Ongoing** when the action is already being implemented but these effects are significant for the achievement of the objectives and will continue to take place by 2030.
2. **Planned** in the case of an action which has already been provided for in one of the following texts but has not yet started to be implemented, namely in:
 - the first version of PACE 2030 of 4 April 2019;
 - or the Walloon contribution to the NECP 2019 of 18 November 2019 (PWEC);

- or the PRW;
 - or the DPR;
 - or any other plan or strategy adopted or endorsed by the GW;
 - or a European obligation.
3. **Updated** in the case of an action which specifies or reinforces an action resulting from it:
- of the first version of PACE 2030 of 4 April 2019;
 - or the Walloon contribution to the NECP 2019 of 18 November 2019 (PWEC);
 - or PRW;
 - or the DPR;
 - or any other plan or strategy adopted or endorsed by the GW.
4. **New** when the action does not fall into categories 1, 2 or 3.

Brussels Capital Region

In this context, the Government will, within the framework of the plan, ensure that:

- In 2019, the Government already committed itself in its General Policy Declaration (GPD) to putting economic transition at the centre of its strategy and to gradually and prioritising its resources towards companies operating in an environmentally and socially responsible manner.
- Through the Shifting Economy, the Government wishes to set an ambitious set of objectives so that the economy is now aligned with:
 - The challenges of reducing direct greenhouse gas emissions and indirect emissions from imports consumed in Brussels.
 - The challenges associated with the scarcity of certain materials and resources.
 - Challenges related to the need for adaptation to climate change.
 - The implementation of this set of objectives will depend on the development of business core-business and/or eco-management of all activities.
- Assess the consistency of the Shifting Economy with the results of the first overall assessment of the region's indirect greenhouse gas emissions to be delivered in 2023;
- On the basis of the overall assessment, identify the indirect emission-generating activities to be studied in more detail as a matter of priority;
- On the basis of this assessment, integrate into all regional planning tools in the short and long term, with a view to a holistic approach and in order to avoid as much as possible load shifting from direct to indirect emissions;
- Raise awareness among Brussels and regional economic operators of the results of the first global evaluation of indirect emissions carried out by Bruxelles Environnement.

Taxation and sustainable finance and financing

Climate-friendly taxation aims to accelerate the climate transition. The aim is to identify and avoid price signals that run counter to decarbonisation objectives, starting from the “polluter pays” principle and creating positive incentives.

The federal government is committed to a climate-friendly energy taxation system. If a transfer of costs from the electricity bill to fossil fuels is envisaged, the regions will be consulted in advance.

Regions may act in the same direction, including through a cooperation agreement. The Federal Government therefore also provides for an exception to the *ne bis in idem* principle as regards taxes on fossil fuels. However, the overall tax burden should not increase in this respect.

Regular monitoring is carried out by the regulators and the report will be submitted to the CNC-CONCERE.

Federal State

Subsidiary “relaunch for the Future” and Green Transition Fund

- Objective Existing/Update

The transformation fund, set up to cushion the impact of the Covid crisis on the Belgian economy, consists of two pillars: a relaunch for the Future (EUR 500 million) and a green transition component (EUR 250 million).

The budget notification of 23/10/2020 on the Transformation Fund states: “The Federal Participation and Investment Company, under a delegated mandate, will take the initiative to set up a so-called ‘transformation fund’ as part of the government’s recovery policy. [...] The objective of the Fund will be to support or even anchor crucial companies, strengthen their creditworthiness and help them reorient to the long-term challenges facing society, such as the fight against climate change, digitalisation of society, health challenges, etc. “The Recovery Fund itself will have two components: on the one hand, a solvency fund to support companies affected by the COVID-19 crisis in the short term, and on the other hand, a recovery fund through which longer-term investments will be made in a sustainable economy with a focus on the themes #BeMobile, #BeInclusive, #BeProductive and #BeDigital of the Belgian Recovery and Resilience Plan.

The transition strand focuses on tackling climate change and the green transition of the Belgian economy. This fund focuses on the theme #BeSustainable of the Belgian Recovery and Resilience Plan.

- Flagship actions (description)

An agreement on the implementation of the two delegated tasks was reached at the Council of Ministers on 29 January 2021.

On the basis of this agreement, two royal decrees were published:

- Royal Decree of 2 April 2021 entrusting the Federal Company of Participations and Investments with a task within the meaning of Article 2 (3) of the Law of 2 April 1962 on the Société fédéral de Participations et d’Investissements and on Regional Investment Companies, following an opinion of the Council of State No 68.795/1 of 4 March 195 2021;
- Royal Decree of 7 February 2021 entrusting the Federal Company of Participations and Investments with a task within the meaning of Article 2 (3) of the Law of 2 April 1962 on the Société fédéral de Participations et d’Investissements and on Regional Investment Companies.

- After a thorough review and several attempts to set up the Green Transition Fund in the course of 2022, a new Royal Decree was presented to the Council of Ministers, repealing the Royal Decree of 7 February 2021 and proposing the establishment of an Investment Committee specialised in the green transition within SFPI.

- Operationalisation (implementation)

The Full Subsidiary of the SFPI “*Relance for the Future*” was established on 25 May 2021. In the short term (until the end of 2021), it will focus mainly on supporting companies affected by the Covid crisis and will seek to strengthen their solvency. This support to companies affected by the Covid crisis was extended to companies affected by the energy crisis at the end of 2022. In the longer term, “*Recovery for the Future*” will encourage companies to make a transition in terms of mobility, social, economic and digital transition. “*Recovery for the Future*” will seek to enable these companies to integrate these economic transformations

195Royal Decree of 2 April 2021, SPF Finances, 16 April 2021.

https://etaamb.openjustice.be/nl/koninklijk-besluit-van-02-april-2021_n2021030895.html

into their business model, taking into account the Do No Significant Harm principle and the environmental, social and governance (ESG) standards recommended at European level.

- Impact

The impact on GHG is indirect, as the purpose of the Green Transition Fund is to financially support the green transition.

- Budget

SFPI will always be a minority investor in the *'Recovery for the Future'* subsidiary and in the investment files carried out by the dedicated Investment Committee in the green transition. Thus, the EUR 750 million of public investment will lead to a total of at least EUR 1,5 billion of investment for transformation.

Financing the transition

- Green OLO: The federal government launched green linear bonds (Green OLO) in 2018 and 2019 for a total amount of EUR 6,89 million, the proceeds of which are earmarked exclusively for public expenditure aimed at the transition to a sustainable economy. New eligible expenditure for the period 2021-2030 will be identified in the areas of transport, energy and buildings, in particular on the basis of this plan, the Energy Pact and the National Pact for Strategic Investments **196**.
- A second green bond issuance took place in 2022, with a maturity of 2039, for a total amount of EUR 4.5 m. The proceeds from the issuance of the bond will be used in accordance with the new Green OLO Framework.

Other measures

- The Federal Government continues to ensure that the EU's multiannual budget for 2021-2027 is in line with and contributes to the objectives of the Paris Agreement.
- INTERFED: A methodological framework for consultations and funding structures at Belgian level will be developed to take full advantage of EU funding opportunities for the energy sector/transition to a low-carbon society: CEF, HorizonEurope, InvestEU, BICC, ESI Funds, new EIB financing policy (European Investment Bank), etc.

Taxation

Climate bonus

- Existing/updated target

Adapting taxation to the green transition:

Ensure that revenues from an EU carbon tax in the non-ETS sectors of buildings and road transport ("ETS BRT") accrue to citizens and SMEs in Belgium.

- Flagship actions (description)

On 14 July 2021, the European Commission proposed a new emissions trading system for buildings and transport. If supported by the Council of Environment Ministers and the European Parliament, this proposal will (indirectly) set the price of CO₂ for domestic fuels and fuels purchased by households and SMEs. However,

196 New Green OLO 2039, news.belgium, 13 September 2022. <https://news.belgium.be/NL/nieuwe-groene-olo-2039>
<https://news.belgium.be/nl/nieuwe-groene-olo-2039>

OLO vert frame https://www.debtagency.be/sites/default/files/content/download/files/green_olo_framework.pdf

the federal government agreement states that price signals that discourage the use of fossil fuels must be introduced in a 'budget-neutral' way, with income being 'returned to the population and businesses'. Similarly, the federal position on the Fit-for-55 package indicates that revenues from a new emissions trading system should be fully passed on to households and SMEs, and should have a gradual impact on income. This recycling of revenues from a tax on non-ETS emissions through European channels is known as the climate bonus. The scale and form of the climate bonus will depend on European negotiations, national distribution and possible implementation at federal level. On this last point, the climate bonus is part of a broader tax reform.

- Operationalisation (implementation)

The implementation of the measure also involves:

- The conclusion of a new cooperation agreement between the federal state and the regions on the distribution of revenues from the Emissions Trading System (existing and possibly new)
- The use of the federal share of revenues from the new emissions trading scheme to reimburse households and SMEs, in ways to be studied and determined.

- Impact

Estimation based on a simple methodology. The cumulative reductions over the period 2026-2030 range between 6,5 and 44.5 Mt CO₂, depending on the carbon price and the elasticity assumption. For a central scenario with a price of EUR 60 million in 2030 based on a median elasticity assumption, the cumulative reduction is 17.8 Mt CO₂.

Environmental tax reform

- Objective Existing/Update

The aim of this project is the greening of federal taxation to make it more climate-friendly and environmentally friendly. The idea is that taxation can also contribute to achieving climate objectives, for example by discouraging the use of fossil fuels.

- Flagship actions (description)

A state of play of the implementation of the main policies and measures described in PFEC 2019 is presented in section 1.2 (ii). In the following, a brief description of the new measures already identified and possible measures to be put in place, which are still under discussion.

1. *Mobility*

- Making the company's car fleet greener

This reform provides for the phasing-out of the current tax and social regime for company cars for conventional cars and its limitation to zero-emission cars from 2026 onwards¹⁹⁷.

The reform provides for:

The abolition of the tax deductibility of business expenses related to the use of carbon-emitting company cars, purchased from 2026 onwards.

Feedingstuffs a gradual reduction in the rate of deduction for business expenses associated with the use of clean company cars purchased between¹ July 2023 and 31 December 2025, up to 0 % in 2028.

¹⁹⁷In this context, it is worth mentioning that Belgium signed the "Declaration on Accelerating the Transition to 100 % zero-emission cars and vans" at COP.26 in Glasgow (2021). This statement expresses Belgium's ambition to switch to emission-free vehicles.

Feedingstuffs a gradual reduction in the rate of deduction of business expenses for clean company cars up to a maximum of 67.5 % by 2031.

Feedingstuffs a limited tax deduction of petrol and diesel costs for hybrids purchased between 2023 and 2025, up to 50 % in January 2023.

For non-zero-emission commercial vehicles purchased from 1^{July} 2023, an increase in the CO2 solidarity contribution by a factor of 2,25 from 1^{July} 2023, followed by a gradual increase in 2025 and 2026 to a factor of 5,50 in 2027.

For zero-emission company cars purchased from 1^{July} 2023, an increase in the minimum solidarity contribution from 2025, so that in the long term the same amount of social contributions will only be due for the average company car in the plan at the time of adoption.

- **Dismantling of the professional diesel advantage:** the percentage of reimbursement of professional diesel has decreased since 1 January²⁰²² and this gradual decrease will continue. This decrease can be further strengthened as a result of changes in the European legislative framework for the taxation of energy products.

From 1 January²⁰²⁴, the refundable amount of excise duty referred to in Article 429 (5) of the Programme Law of 27 December 2004 will be reduced. In order to reduce vulnerability to fraude and increase control capacity, applications for reimbursement of diesel proffesionel can only be submitted electronically.

- **Taxation of the aviation sector:** a boarding tax was introduced with effect from 1^{April} 2022. Belgium is also committed at European and international level to revising the current tax exemption on kerosene.
- **With regard to the generalisation of the bicycle allowance,** the use of cycling as a sustainable means of transport for journeys between home and work was made possible for all employees in the private sector following supplementary sectoral agreement No 164 of 24/01/2023. In support of this agreement, the Government provided for a compensatory tax credit which temporarily neutralises the additional costs associated with the granting of these bicycle allowances for employers. The tax credit is granted for bike allowances per kilometre for commuting between 1 May 2023^{and} 31 December 2024. In this way, the costs resulting from the implementation of SCC No 164 are compensated. In addition to the generalisation of the bike allowance, it is also examined to what extent an increase in the social and tax exemption from the bike allowance for commuting can contribute to a more intensive use of cycling as a sustainable means of transport.
- **Other measures:** Tax relief for charging stations
In order to support the accelerated greening of the commercial vehicle fleet, an increased deduction of costs for the installation of smart and publicly accessible charging stations has been introduced.

2. *Supporting the energy transition*

- The excise reform is a flexible policy instrument that can be used to support the energy transition, with the intention that after the entry into force of the first excise reform and over a period of up to 10 years, part of the excise duties on electricity will be gradually transferred to excise duties on fossil energy sources.

Second phase of the excise reform (exception on ne bis in idem included)

To support the energy transition, it is important to reduce electricity burdens, with a view to making heating of buildings and domestic hot water profitable using renewable energy sources.

Regions also play an important role in discouraging the use of fossil energy and promoting the use of renewable energy sources. The policies of the federal authority should support these regional policies.

The regions will be allowed under a cooperation agreement to transfer the historic charges raised from electricity to fossil energy, in line with their respective policy objectives through an additional legal exception to the *ne bis in idem* principle. The specific modalities of a possible transfer (such as mass and duration) are defined in a cooperation agreement.

As part of the national energy and climate plan, it was agreed that for federal excise duties, 50 % of excise duties on electricity will be transferred to excise duties on fossil energy (natural gas, propane,). This transfer is implemented in three equal stages: July 2028, July 2030 and July 2032. Fuel oil and coal will be excluded. Professional users are excluded from this reform.

Budgetary impact: From 2024: PM

3. *Reform of the investment deduction*

- In order to stimulate productive investments, the current investment deduction measures, in particular their investment criteria, will be adjusted. It is examined in this context which existing investment deduction incentives can be phased out in order to encourage other investments. Particular attention shall be paid to sustainable investments, environmental, transport and digital investments. This planned reform will enter into force for investments from 1/1/2025. In the meantime, discussions on this reform are ongoing, at the initiative of the Minister of Finance, and a fiscal neutral package is also under preparation. These measures will support the purchase, leasing and rental of zero-emission vans and related infrastructure.

- Operationalisation (implementation)

- Regarding the greening of the corporate vehicle fleet: the Law on Social and Fiscal Greening of Mobility was passed on 25 November 2021 and the first measures enter into force on 1 July 2023;
- In parallel, negotiations are continuing at European level on the revision of the Energy Taxation Directive (ETD), the result of which will have an impact on the legal framework for the abolition of fossil fuel subsidies.

- Impact

With regard to some of the measures mentioned above:

- A study was carried out in 2022 at the request of the FPS Finance. This study includes estimates of the budgetary impact of some of the measures proposed by the authors, as well as their perception by the consulted civil society experts and, in some cases, estimates of the impact on greenhouse gas emissions.
- On the greening of companies' car fleet: In a 2022 study, the Federal Planning Bureau estimated that "the overall impact of the reform is an increase in annual net tax revenue of around USD 1 billion annually from 2026, except in 2026 and 2031. As regards the environmental impact, the Federal Bureau 243

according to the Plan, the tax reform leads to ‘an accelerated reduction in CO2 emissions, with a peak of around 1 million tonnes of CO2 per year in the first half of 2030’.

- Budget
/

Flemish Region

Private actors already bear the bulk of energy and climate-related investments. However, a number of investments will require public interventions to address market failures and the lack of initiative of private actors. For example, because initial investments are high and the time to return is long, because the risk is considered too high or because the costs and/or benefits of the action accrue to different actors. This is also the case for investments where significant economies of scale are possible (e.g. provision of public transport, energy network infrastructure, development of data and knowledge sharing platforms), and public intervention is obviously needed to support climate investments by groups with insufficient financial resources.

Encouraging private investment in the energy and climate transition

A clear policy framework can encourage increased private climate finance. A first step in this direction is the establishment and implementation of this plan. Furthermore, we want to work to facilitate collaboration between different private actors and support the financial instruments used for the climate (e.g. green bonds, investment funds, etc.). We are developing innovative financing tools (working capital, blending, etc.) to encourage private investment. The Flemish Climate Fund can be used as co-financing for this purpose (see below).

As part of the industrial climate leap trajectory, the first programme note foresees a working group of experts who will develop proposals for transition tools that can support low-carbon projects, such as contracts for difference, by summer 2023.

Budgetary and other costs of mitigation policy for the Flemish Authority

Since 2022, the Vora has included an estimate of the budgetary costs (using the annual commitment credit) for the different VEKP measures. This will make it possible to better identify total costs.

In addition to the budgetary costs for mitigation measures, there are also other costs: contributions to international climate finance, compensation of indirect emission costs for industry (see industry chapter) and potentially also costs for the use and purchase of flexibility mechanisms for the achievement of Flemish climate objectives.

Use and purchase – flexibility

The European Effort Sharing Regulation (ESR) and the *LULUCF Regulation*, even after having been revised as part of ‘Fit for 55’, offer different forms of flexibility to Member States to enable them to meet their targets in the period 2021-2030. In addition to maintaining some forms of flexibility (saving, borrowing and trading of emission allowances) from the 13-20 period, some mechanisms have been abolished (purchase of CDM and JI project rights) and new mechanisms have been introduced (ETS flexibility, flexibility between the national

target for ESR sectors and the (new) national LULUCF target). The ESR and LULUCF Regulations set quantitative and sometimes also qualitative limits on the use of these different flexibility instruments. The distribution of access to these forms of flexibility between regions is part of the intra-modal burden-sharing exercise of the 2021-2030 climate targets. Further explanations on the application of the flexibility scheme by Flanders can be found in the introductory part of the Energy and Climate Plan, under the title 'Strategy for the five dimensions of the Energy Union', as well as in the part on overall targets and trends in ETS greenhouse gas emissions, under the title 'Application of flexibility mechanisms'.

Contributions to international climate finance

International climate finance aims to support developing countries in their actions against human-induced climate change. In the context of the United Nations Framework Convention on Climate Change¹⁹⁸, developed countries had to take the lead in providing international climate finance and pledged to jointly mobilise USD 100 billion per year by 2020. By 2025, a new collective international target of more than USD 100 billion per year will be set. The order of magnitude and the related conditions of this new target will be negotiated by 2025.

For the period 2016-2020, Belgium had committed to annual funding of EUR 50 million. According to the collaboration agreement of 12 February 2018 between the Federal State, the Flemish Region, the Walloon Region and the Brussels-Capital Region on the distribution of Belgian climate and energy objectives for the period 2013-2020¹⁹⁹, Flanders was to allocate EUR 14,5 million annually to international climate finance. In an agreement in principle dated 14 September 2022, the climate and energy ministers of the various Belgian governments agreed to increase the contribution to international climate finance for the period 2021-2024. In doing so, Flanders commits to contribute EUR 68 million over the period 2021-2024. This agreement in principle will be formalised in a new collaboration agreement submitted to parliaments.

Flanders' international climate ambition is demonstrated by continuing to contribute to international climate finance, preferably using these means for projects involving Flemish companies, such as through calls for projects launched in recent years.²⁰⁰

Financing the Flemish mitigation policy

Possibilities within the existing budgets of the Flemish Authority

Functional Ministers are responsible for climate compatibility of regular policy within their competences (Climate Proofing or climate change mainstreaming). As foreseen in the VEKP Framework of Agreements, Ministers with functional competence in their respective fields are taking the necessary steps to accelerate the climate transition. All sectors must take their responsibility in order to achieve the common objective. Each functionally competent minister formulates targeted and substantiated measures for his/her area that contribute to the Flemish energy and climate objectives, and are converted into concrete and budgeted policy.

Use of European funding channels

There are many EU funding instruments (e.g. dedicated funds such as ERDF and Interreg, LIFE, Horizon Europe,

¹⁹⁸ www.unfccc.int

¹⁹⁹ Burden Sharing Cooperation Agreement: https://www.cnc-nkc.be/sites/default/files/content/ac_bs_2013-2020.pdf

²⁰⁰ <https://www.climate-action-programme.be/>

EFC, European financial instruments as proposed in particular by the European Investment Bank) that can be used to achieve Flemish climate objectives. In this context, Flanders aims to ensure that:

1. Climate actors in Flanders – both public and private – make maximum use of EU instruments for financing Flemish climate policy, resulting in more (innovative) projects and initiatives contributing to the achievement of the Flemish Climate Policy Plan, the Energy and Climate Plan for Flanders 2021-2030 and the Flemish Climate Vision 2050.
2. The Flemish climate change mitigation projects carried out under the EU support instruments have an optimal impact after their completion.

VEKA is pursuing a strategy to raise EU funds for both public and private investments in projects contributing to the achievement of Flemish energy and climate objectives. To this end, we use the possibilities provided for in the EU budget 2021-2027 and are planning Flemish resources to co-finance European projects. In this way, Flanders makes better and wider use of available EU funds.

Flemish Climate Fund: estimated resources available in the period 2021-2030

In addition to the financing possibilities mentioned above, the Flemish Climate Fund can play an important role. This fund was set up in 2012 as an organic budget fund. Flanders has thus created the necessary financial framework for an ambitious long-term climate policy.

The annual Flemish revenues in the period 2021-2030, Flanders' share in Belgium's auction products under the EU Emissions Trading Scheme, are estimated at around EUR 250 million per year.²⁰¹

However, the evolution of the products of these auctions is difficult to predict. Indeed, both the price of the auctioned allowances and the volumes of European allowances auctioned are very difficult to estimate at this moment for the 2021-2030 trading period.

- The average price has increased sharply in recent years, from around EUR 20/t of CO₂ in 2020, to EUR 53/t of CO₂ in 2021 and to EUR 80/t CO₂ in 2022. Price projections suggest that the price will continue to increase slightly in the coming years, but there is no certainty about this.
- The volumes of allowances auctioned themselves will depend on other uncertain parameters: the economic situation, the impact of the market stability reserve and the proportion by which the number of allowances auctioned will be reduced to avoid the application of the cross-sectoral correction factor.
- In the European Commission's proposal to create additional own resources, 25 % of Member States' revenue is returned to the EU budget. If approved, this proposal will have a negative impact on Flanders' revenues.
- Under REPowerEU, a limited proportion of ETS allowances is auctioned to encourage Member States to finance measures to ensure energy security in the longer term. The Flemish Climate Fund is therefore less fuelled by revenues from the emissions trading scheme.
- The extension of emissions trading to new sectors (maritime transport, buildings, road transport and energy emissions from ESR industry) could generate new revenues for the Flemish Climate Fund, depending on the intra-modal distribution of these revenues.

Flemish Climate Fund: priority use of resources over 2021-2030

The Climate Fund Decree defines the purposes for which the Climate Fund can be used:

- Flanders' internal climate policy to achieve Flemish greenhouse gas emission reduction targets. These policies or projects contribute to the Flemish ESR reduction target or the Flemish no-debit rule of LULUCF.

²⁰¹This approximate estimate is based on the assumption that the Flemish share of Belgian auction products remains unchanged in the period 2021-2030 compared to the 2013-2020 share (52.76 %), a preliminary estimate of auction volumes based on the ETS revision negotiations, and a CO₂ price that will continue to fluctuate around its current level in the coming years.

- The implementation of the Flemish policy on flexibility mechanisms under the Effort Sharing Regulation (in case the Flemish greenhouse gas reduction target cannot be achieved through internal measures).
- Remedying the loss of competitiveness of Flemish companies as a result of climate policy (compensation of indirect emission costs).
- The implementation of the Flemish accompanying policy to reduce additional take for housing and work.
- The implementation of the Flemish contribution (s) in the context of international support to developing countries in their fight against climate change (international climate finance).

In recent years, experience has been gained in using the VCF for the Flemish mitigation policy in six funding cycles (2012-2013, 2018, 2016, 2019, 2021 and 2022). This report shall be published annually and shall indicate the impact of each measure on greenhouse gas emissions. This shows that the efficiency of public costs (the cost of reducing CO₂ emissions from the Flemish Authority or local authorities) varies considerably between the different measures, due to the nature of the investments and the sector, but also to the way in which the government's financial contribution is developed. Measures that manage to raise a lot of capital from third parties tend to have more efficient public costs. Projects supported by the VCF are closely monitored, not only to justify the use of resources, but also to draw as much lessons as possible.

The annual income in Flanders over the period 2021-2030 is estimated at around EUR 250 million per year. These amounts are relatively small compared to the total expected costs of climate policy. However, VKF can play an important role if used for high leverage measures.

This is why efforts are being made to optimise the functioning of the Climate Fund. Flemish policy measures that contribute to the ESR reduction target or the Flemish non-debit LULUCF rule always follow the co-financing principle, as is the case for many EU funds. This means that greenhouse gas reduction measures cannot be financed entirely by the Flemish Climate Fund, but must at least be co-financed by other public and preferably also private funds. This achieves a leverage effect on the Climate Fund and increases its impact. In addition, the principle of public cost efficiency is also applied: the contribution of the Climate Fund to the financing of a measure is proportionally higher where the cost efficiency of the financed measure is higher. These principles were defined by the Flemish Government in 2020 and 2021 as part of 202 an expenditure framework for the VCF.

The Flemish Climate Fund shall be used in the sectors covered by the ESR to contribute to the achievement of the 2030 greenhouse gas reduction target. The Climate Fund will also be used for investments in the design of open spaces that contribute to the objective of 'no net loss' of carbon losses from land use, and for accompanying policies to implement the preservation of open spaces. To this end, the Constitutive Decree of the FCR was amended in 2020 and 2022. The policy space within the Flemish Climate Fund, split between the various Flemish mitigation measures for the budget year 2023 and subsequent years, will not be used for measures that support the use of natural gas condensing boilers.

Taxes on environment

In addition to the sectoral tax measures taken by Flanders and included elsewhere in this plan, the Flemish Government will urge the federal government to implement a number of measures to make taxation climate-friendly:

- No increase in the tax burden (VAT rate) on renovation.

- Maintenance of the reduced VAT rate for demolition and reconstruction throughout the territory (at least for building envelope and technical installations).
- Increase of the aid percentage for the deduction of investments for energy saving measures (currently 13.5 %) and extension and adjustment of the list of eligible investments to include investments that contribute to the reduction of CO₂ emissions by reducing emissions (including technologies for green heat demand such as geothermal energy, hydrogen, etc.) or capture and treatment, investments in electrification of mobility (charging systems, electric vehicles) and electrification of existing industrial processes (such as electrothermia and electrochemistry).
- Insertion of an exception to the *ne bis in idem* in Article 1 of the Law of 23 January 1989 on fiscal jurisdiction referred to in Article 110 (1) and (2) (now Article 170 (1) and (2) of the Constitution) so that the Flemish Region can also introduce a tax on fossil fuels, which will mean reducing taxes on electricity. However, the overall tax burden is not expected to increase during this process.

We also call on the Federal Authority to carry out a thorough assessment of all fossil fuel subsidies/reductions and to phase them out where appropriate.

A reform of the taxation of international air and maritime transport (fuel and/or air tickets), preferably harmonised at EU level and if possible even globally, could generate new revenues for Member States, Belgium and regions, which could be used to co-finance the climate transition. In this context, the ongoing negotiations in the EU on the revision of the Energy Taxation Directive – in which the European Commission proposes to tax fuels for intra-Community maritime and air traffic – are closely monitored from Flanders.

At Flemish level, study the technical feasibility of allowing local administrations to use differentiated additional cents from property tax within the boundaries of their territory. This can be a useful tool for local administrations to encourage accelerated deep renovations at neighbourhood level. A municipality may then opt for lower additional cents or a zero rate if the district agrees, for example, to phase out fossil fuel heating systems.

Region Walloon

See transport section, on car taxation

Brussels Capital Region

In order to achieve its decarbonisation objective, the government shall take the following decisions on:

Financing decarbonisation measures:

As regards financing, the Government undertakes to:

- Respect the principle of ‘do not significant harm’ in its expenditure, as is the case with the European Recovery Plan
- Develop, if necessary, financing vehicles that provide the Region with access to available sources of EU funding
- Maximising the use of private financing, including through tier-investment mechanisms
- Continue with the new investment strategy led by finance.brussels in the context of its recapitalisation
- Analyse, via finance.brussels and the Debt Agency, the advisability of issuing Green Bonds at regional level to finance transition policies
- Identify PACE measures for which European funding would be available or European and international collaboration add value
- Identify relevant opportunities within the different European funding programmes.

International climate finance:

- In line with its commitment in 2016 and 2020, the CBR contributed a total of EUR 11,3 million to international climate finance.
- Increase its contribution to international climate finance for the period 2021-2025. As such, the

Government voluntarily sets a new increased contribution for this period of at least EUR 2,75 million per year for 2021 and 2022, and by at least EUR 3 million in 2023 and 2024.

- Pursue an efficient climate finance policy balancing multilateral and bilateral contributions.
- Engage in a new multi-annual bilateral partnership with Enabel.

Energy

Federal State

This section presents the policies and measures (MAP) which are the subject of a report in the context of the monitoring of federal climate policy and of which the WRC took note on 8 October 2021. The energy specific MAP have been integrated into the energy dimensions, i.e. in Titles 3.1.2 to 3.5.

Co₂ neutral fuels (biofuels, efuels, H₂ and renewable electricity)

See 2.1.2 and 3.1.2

Energy Transition Fund: supporting research, development and innovation on energy transition within the framework of federal energy competences

See 3.5. Energy transition fund

Adapting the infrastructure of the transmission network to the energy transition

See Section 3.4.2

- Optimisation of the energy efficiency of gas and electricity infrastructure in electricity and gas transmission system operators

Flagship action

- Further align support mechanisms (e.g. exchange of certificates) between entities in order to achieve economies of scale, including with neighbouring countries²⁰³.

Strengthening offshore capacity in the North Sea

See 2.1.2 and 3.1.2

Hydrogen and CO₂, parts of the energy transition puzzle

- Objective Existing/Update

The hydrogen market is in transition. Not only to make production more sustainable, but also for long-distance transport, conversions for transport, interaction with other energy carriers for storage and flexibility, new applications in industry and transport. Hydrogen will play an important role in making sectors more sustainable, where electrification is not always technically possible or economically realistic. During this transition, the market will continue to develop and organise itself. A clear policy and regulatory framework is needed to ensure market confidence and enable new investments.

²⁰³Amendment of the Royal Decree amending the Royal Decree of 16 July 2002 on the establishment of mechanisms for the promotion of electricity produced from renewable energy sources in order to align this support with that of neighbouring countries.

To this end, the federal government has developed a hydrogen strategy based on four pillars:

- Positioning Belgium as a hub for the import and transit of renewable molecules in Europe
- Strengthening Belgian leadership in hydrogen technologies
- Building a robust hydrogen market
- Investing in collaboration for successful implementation

- Flagship actions (description)

The development of a hydrogen market is supported by the federal government at different levels and by the Hydrogen Act and its implementing decrees, the regulations and the designation of the hydrogen transmission network operator make the market more accessible to companies wishing to work around hydrogen and offer an additional tool to ensure security of supply. The efficient development of the basic and import infrastructure, as well as the certification framework, place Belgium on the map of potential exporters of renewable hydrogen, but also make it interesting as a transit country for our neighbouring countries in need of stable and reliable hydrogen imports. Finally, the government supports Belgian R & D actors along the hydrogen value chain, including by developing a testing infrastructure for hydrogen technologies and through grants and calls for projects.

- Operationalisation (implementation)

The Law on Hydrogen Transportation by pipeline of 11 July 2023 provides for the designation of a hydrogen transmission network operator. This operator will be responsible for granting non-discriminatory access to the hydrogen transmission network and for planning, developing and operating this infrastructure in Belgium. A transitional regime is foreseen for existing hydrogen transmission pipelines.

This regulation provides industry with an additional tool to switch to renewable energy by ensuring the development of the grid that is necessary to ensure security of supply and a well-functioning hydrogen market.

For the operation of the network, the framework will be further refined by a pipeline licensing policy and a framework for the preparation of a development plan. The hydrogen transmission network operator will also have to develop network access rules and submit them to the regulator for approval, and submit a proposal for hydrogen quality standards to the Minister.

The support will be developed in the form of calls for projects such as the Clean Hydrogen for Clean Industry call, the first of which has already been launched.

- Impact

These measures will support the development of hydrogen and hydrogen derivatives as part of the energy transition, and help to position Belgium as an import and transit centre.

Total domestic demand for H₂ molecules and H₂ derivatives in Belgium will be between 125 and 200 TWh/year (including bunker fuels) by 2050. The hydrogen backbone will make it possible for these products to be transported to the various customers. The first 100 to 150 km of the backbone should be completed by 2026. In 2028, the connection with Germany should be established. This will allow the Belgian industry to further develop in the field of hydrogen, thus preserving jobs and adding economic value to the

energy transition. The calls for projects enable companies to further develop the technology through demonstration projects and further research.

See Section 2.1.2 (iii); 3.4.3 III and iv.

- Floating solar and water park

See sections 2.1.2 and 3.1.2.

The federal government accelerates its commitment to renewable energy production, the government decides to:

- Accelerating investments in offshore solar energy (solar energy floating). This represents a potential of 1 GW;
- Launch research on investments in aquaculture farms in order to promote the cultivation of seaweed as a feedstock for biofuels.

Reducing aviation constraints related to wind energy development

- Objective Existing/Update

Reduce the technical constraints imposed by air navigation services equipment on the implementation of wind turbines.

- Flagship actions (description)

We aim to maximise the reduction of existing aviation restrictions on renewable energy deployment. These may include restrictions on distance from air navigation, communication or surveillance equipment such as radars, height or surface restrictions, or the establishment and location of exclusion zones, etc. Additional investment funds will be registered with Skeyes and the Ministry of Defence. The project could lead to a potential increase of 1.5 GW of renewable energy.

Other measures

- Operationalisation (implementation)

The first step will be to assess the short-term improvement potential of the current files. Next, an assessment of structural improvements will be carried out by Skeyes and the Defence, which will propose a roadmap including the establishment of consultations between Skeyes, Defence and the competent regional authorities. Finally, the structural measures envisaged will be implemented. Together with the industry, Skeyes has developed a strategic plan to increase the number of locations where wind turbines can be installed without compromising air traffic safety. Mr Skeyes has established a new roadmap taking into account the priorities and requests identified by EDORA and VWEA. Skeyes presented on 22 November 2022 a series of measures to support the energy transition, including the removal of the protection zone around Charleroi airport. Wind projects located closer to the airport can now be assessed.

- Impact

Reduce greenhouse gases by increasing renewable energy production through the potential expansion of wind farms and increasing renewable energy production (1.5 GW).

- Budget

The public expenditure approved for 2023 amounts to EUR 6 750 000.

See also point 3.1.2

Region Walloon

As part of the energy transition, hydrogen is expected to play an important role in **decarbonising certain sectors**. The International Agencies (IEA or IRENA) and the industrial sector recognise hydrogen as the cornerstone of the long-term transition and decarbonisation of sectors such as chemical, glass and steel industries, but also see significant opportunities in some thermal processes.

The transport and final distribution of hydrogen energy can be achieved through the synthesis of gases such as ammonia or other synthesis gases. To this end, it is essential to have a **legal framework** that clarifies federal and regional responsibilities. The aim is to provide industry with short-, medium- and long-term prospects for developing the sectors and to take a long-term approach with certainty that they will have an enabling environment to flourish. The Walloon Region therefore affirms its desire to position itself as a reference player in the development of the low-carbon hydrogen production and valorisation sectors.

387	Establish a legal and administrative framework to enable the development of low-carbon hydrogen production chains in Wallonia. This involves clarifying the competences between federal and regional authorities, particularly in terms of transport and distribution, setting up a labelling system at an appropriate level (European, national or regional), removing any remaining legislative limiting factors in the current framework and any other obstacles identified. All the provisions of this legal and administrative framework will be identified in a roadmap for the development of H2 sectors in Wallonia. The roles of the regional regulator (CWAPE) and distribution system operators (DSOs) will have to be formalised. The medium/long term objective is for the Region to be a leader in the development of low-carbon hydrogen production and valorisation pathways.	New	—
388	Mandate gas distribution system operators (DSOs) to strengthen their work to identify technical needs for the distribution of low-carbon hydrogen to final customers. This should lead to a coordinated investment plan, taking into account local production.	New	—

	hydrogen and links with the development of the transport network. The feasibility of this action may be supported by pilot projects for the injection of “pure” hydrogen or alternative vector produced from H ₂ (CH ₄ , NH ₃ ,...).		
390	Mandate a consortium of Walloon public stakeholders (clusters, GRDs, inter-municipal territorial development organisations, etc.) to develop a programme to support integrated low-carbon hydrogen sectors. This will be based on the identification of final customers, some of whom depend on the public authorities (OTW public transport network, etc.). Particular attention will be paid to potential synergies with neighbouring countries and regions. This action may be based on the establishment of pilot projects. This will be supported by public and private research programmes.	New	—
392	Support, in particular through an ad hoc financing mechanism (public, private or public-private) for the production, distribution and consumption of low-carbon hydrogen, respecting the European legal framework (state aid compatibility in particular) and clarifying the roles of each entity (see Action 388). This will be based on a comprehensive analysis of all types of incentive schemes (feed-in tariff, guarantees of origin, etc.). Any mechanism of financing enabling one neutrality fiscal (cost/profitability) will be preferred.	New	—
393	Strengthening research and innovation in the low-carbon hydrogen sector	Ongoing	—

Transport and Mobility

International maritime transport and aviation are not covered by the ESA Member States’ climate target and policy is largely organised at international level. Belgium joins several countries with the objective of phasing out maritime transport emissions by 2050 by signing the Declaration on Zero Emission Maritime Transport by 2050. It also signed the Clydebank Declaration on Green Maritime Corridors in Glasgow and therefore committed to developing green corridors, i.e. zero-emission maritime routes between ports. In addition, we want to focus on policy measures such as the promotion of energy-efficient vessels and shore-based electricity.

In the maritime sector, Belgium, in coordination with EU Member States and in addition to maritime transport ETS, will explore the introduction of a mechanism to ensure a transition to forms of energy without net emissions of greenhouse gases at international and national levels, as well as the imposition or strengthening of emission standards. To this end, a progressive plan for maritime transport in Belgium should be developed, active cooperation at international level continued and proposals for measures should be submitted to the International Maritime Organisation (IMO).

Similarly, and taking into account the level playing field, Belgium calls on the aviation sector to make concrete commitments and to develop a roadmap to substantially reduce greenhouse gas emissions for which it is responsible. The aim is to internalise the external environmental costs of aviation activities through fiscal measures. In this way, we can support initiatives to improve and harmonise carbon pricing in the aviation

sector at European level.

Policies and measures to reduce greenhouse gas emissions from transport modes in ESA are structured around the following three axes:

1. Reducing demand for mobility, mainly through spatial planning (reduction of distances between residential areas, services and leisure) and behavioural and cultural changes;
2. Steer the development of mobility. This requires building/investing in a multimodal mobility system, promoting modal shift by strengthening and improving the provision of public transport and encouraging the use of soft mobility (walking, cycling);
3. For the remaining part of transport, aim to gradually decarbonise road transport through carbon-free technologies.

Each government deals with matters within its competence. However, coordination and cooperation are needed on a number of topics.

In the framework of the Inter-ministerial Conference on Mobility, cooperation continues on the implementation of the uniform bicycle registration system, with a view to focusing on the prevention of bicycle theft. In addition, the objectives included in the inter-federal vision for MaaS (Mobility as a Service) are implemented: (1) alignment of federal and federated entities with regard to MaaS, that is to say, the objectives to be achieved and the way in which they should be achieved, in different ways: business model, technology and data model, awareness raising and communication to people and infrastructure; (2) enable the development of MaaS solutions through a clearly defined market and allow their consistent application throughout Belgium; (3) highlight the expected role of different stakeholders: authorities, MaaS solution providers, mobility operators, users.

The federal government, within its remit, will accompany the regions in their decisions (modalities and dates) on the phasing out of fossil fuel vehicles. In this context, the federal government will also take into account the impact of this transition on public finances (e.g. the impact on excise duties). In doing so, the federal government, in consultation with the regions, will also ensure the development of the necessary infrastructure and the exchange of data. This should also allow the deployment of emission-free vehicles in a flexible electricity grid.

- in the context of the negotiations on the fit for 55 package, work at European level to create the (legal) possibility to fulfil the commitment of the Federal Government Agreement on Zero Emission Vehicles. More specifically, support a level of ambition for the revision of CO₂ standards for light-duty vehicles to meet our commitment (eventually the sale of zero-emission vehicles).

- consult other relevant ministers and other entities on possible proposals to switch to the sale or registration of zero-emission vehicles only.

Belgium signed the Memorandum of Understanding on Medium and Heavy Zero Vehicles, committing to sell 30 % and 100 % of new zero-emission trucks and buses by 2030 and 2040, and to cooperate in this area within the Inter-Ministerial Conference on Mobility.

Federal State

- Existing targets
 - Decarbonisation and reduction of externalities on the environmental (pollution, noise, etc.) and societal aspects (accidents, congestion, public health, etc.) of mobility in Belgium through the

application of the triple 'Avoid-Shift-Improve':

Feedingstuffs avoid: reduce transport demand (local production and consumption, teleworking, etc.)

- Shift: use the most environmentally friendly means of transport for each part of the journey (this requires the application of the STOP principle)
- Improve: decarbonisation of transport modes (e.g. electrification for light-duty vehicles).
- Promoting the electrification of transport for electric cars, light electric vehicles, bicycles, scooters and motorcycles, etc.

Phasing out greenhouse gas emissions from international maritime transport by 2050

- Objective Existing/Update

Reduce greenhouse gas emissions from maritime transport in line with the objectives of the IMO, EU and Belgian GHG strategy, taking into account the temperature objective of the Paris Agreement in order to limit global warming to a maximum of 1.5 °C.

- Planned actions (description)

At present, the IMO GHG Strategy sets the following objectives: 50 % reduction in GHG emissions by 2050. The objective of the revision of the IMO GHG Strategy: support a higher level of ambition for a total reduction of GHG emissions by 2050, instead of the initial 50 % GHG reduction target by 2050. Within the EU, thanks to the Green Deal, the ambition is to reduce emissions by 55 % by 2030 and to reach climate neutrality by 2050. Measures to achieve these ambitions for maritime transport are currently being discussed in the IMO and soon in the EU Council Working Groups on Transport and Environment. Measures that can be applied to smaller ships sailing in Belgian waters and not covered by IMO legislation are also considered.

- Operationalisation (implementation)

- IMO: review of the IMO GHG strategy and discussions in the IMO on possible medium- and long-term measures, including a market-based measure.
- EU: discussions in the Council on the Fit for 55 package of measures for maritime transport (in the context of the revision of the Emissions Trading System, FuelEU Mar...).
- BE: identify additional measures to decarbonise the national maritime transport sector.

- Other measures

Belgium joins several countries with the objective of phasing out emissions in maritime transport by 2050 by signing the Declaration on Zero Emission Maritime Transport by 2050. It also signed the Clydebank Declaration on Green Maritime Corridors in Glasgow, committing to green corridors, zero-emission maritime routes between ports²⁰⁴.

Modal shift: Maas

- Objective Existing/Update

The aim is to promote a modal shift towards public transport and active modes of transport. This objective

Clydebank²⁰⁴ Statement for Green Maritime Corridors, ukcop26.org, 10 November 2021. <https://ukcop26.org/cop-26-clydebank-declaration-for-green-shipping-corridors/>

has three components: a federal action plan for cycling (see C.), the reform of the highway code (see point D.) and Mobility as a Service (MaaS):

- Encourage the development and further deployment of MaaS in Belgium for sustainable mobility, in particular modal shift.
- Ensure, as a reliable partner, the further development of the National Access Point (NAP) www.transportdata.be to provide technical support to MaaS platforms.
- Specific objectives as set out in the inter-federal vision for MaaS: (1) propose alignment of federal and federated entities with regard to MaaS, i.e. the objectives to be achieved and how to achieve them, in different aspects: business model, technology and data model, public awareness and communication and infrastructure; (2) enable the development of MaaS solutions through a clearly defined market and allow for consistent application throughout Belgium; (3) highlight the expected role of different stakeholders: authorities, MaaS solution providers, mobility operators, users.

- Flagship actions (description)

Because MaaS combines an extended multimodal transport offer and presents it to the passenger in a single application, it is essentially a tool that contributes to the modal shift. The different levels of government are involved, with practical development taking place mainly at local or regional level, depending on the situation. Given the intensity of interregional passenger transport, it is important to ensure that there are also integrated solutions with national coverage in our country. Rail traffic is widely recognised as the backbone of sustainable transport, and an additional policy is needed to position SNCB in the MaaS ecosystem.

We also see increased interest in this topic at EU level. For example, the revision of the ITS Directive is ongoing, inter alia to include MaaS. In addition, the Commission launched a consultation cycle to propose new regulations on trade relations with multimodal digital mobility services in the second quarter of 2023.

- Other measures

- Operationalisation (implementation)

- Active participation in consultation bodies both at official level (European Commission, Benelux and ITS Steering Group) and in a broader context with representatives of the private sector (MaaS Alliance, Belgian MaaS platform organised by ITS.be).
- Follow up the announced European regulatory initiatives and implement them in the Belgian context once they have been approved.

Implement the MaaS inter-federal vision, approved in September 2022. This is done, on the one hand, in a working group led by the cabinet with representatives of regional cabinets and mobility and transport administrations; on the other hand, in consultation with the private sector (implementation still to be developed); this is the case for the four topics discussed (market & business model, data integration & IT, intermodal infrastructure, awareness raising).

- Impact

By encouraging modal shift and thus reducing car use towards more sustainable modes of transport, MaaS aims to reduce greenhouse gas emissions. However, it is extremely difficult to measure the impact of MaaS on greenhouse gas emissions, not least because it is difficult to measure the exact contribution of MaaS.

Promoting cycling

This title brings together the measures previously described in the summary report under points 3.C Federal Action Plan for Cycling and 3.D Cycling Promotion.

- Objective Existing/Update

The aim is to promote the modal shift towards cycling.

- Flagship actions (description)

Advocate for a cross-cutting approach to cycling at EU level. The aim is to make the European Commission aware of the potential of cycling in the fight against climate change.

Introduce measures to promote the development of cycling for commuting, in cooperation with the social partners.

Establish an inter-federal technical system (MyBike) to organise the fight against theft.

Identify national statistics on cycling and trends.

The measure consists of the development of an action plan for cycling (Be Cyclist 2021-2024), in collaboration with other members of the government. The plan focuses on concrete measures for (a) more cyclists and (b) positive communication on cycling. Be Cyclist is the Belgian federal government's first-ever action plan for the promotion of cycling. It has enabled a series of very important federal levers to be activated, in particular as regards the fight against bike theft, taxation in connection with commuting, the combination of cycling by train, the Régie des Bâtiments, the Public Service and full of others. The government has thus started to complement cycling policy at other levels of government. The Government undertakes to prepare the work of future governments by making available its experiences and recommendations and a working method to ensure consistency with the future federal policy on cycling mobility.

Explore the possibility of combining (federal, regional, provincial, etc.) the various areas of expertise for the deployment of cycling logistics (taxation, employment, etc.).

- Operationalisation (implementation)

1. At the initiative of the Belgian Federal Minister for Mobility, an alliance of six European Mobility Ministers signed the European Cycling Declaration in Luxembourg on 2 June 2022. Austria, Belgium, Denmark, Ireland, Luxembourg and the Netherlands. Together, they call on the European Commission to have a genuine cycling policy for Europe and to make 2024 the European Year of Cycling. Since then, the alliance has grown up with the signature of Spain, Estonia, France, Greece, Hungary, Lithuania, Slovakia and Slovenia. In March 2023, the Vice-President of the European Commission, Timmermans, announced a favourable response to the first of the two requests. The Commission will present a text for a first-ever European cycling strategy in 2023. In addition, and at a more technical level, during the revision of the TEN-T guidelines, Belgium took part in the preparation of a non-paper asking five countries to take better account of cycling in the RTE- T guidelines. This document, signed by five Member States, made it possible to include in the general approach adopted by the Council in December 2022 a number of modifications favourable to cycling in the TEN-T guidelines.
2. Since 1 May 2023, all private employees have had access to an allowance for commuting/cycling.
3. The draft cooperation agreement for MyBike was approved at first reading by our 4

governments and confirmed by a Codeco in March 2023. The validation process is ongoing.

4. The first inter-federal thematic committee on cycling data, organised by the Federal Public Service for Mobility, took place in November 2022. The second inter-federal thematic committee on cycling data is planned for 2023. At the end of 2022, the report of the Bemob survey of the Federal Public Service for Mobility on Cycling was published. A new Bemob survey on the use of bicycles and scooters is planned for the second half of 2023.
5. The drafting of the bike action plan was mainly carried out by Vias and the Minister's strategic unit. In 2021, Vias and the Strategic Cell held bilateral meetings with the strategic cells of each government member to see what cycling promotion measures they could take. The role of the Federal Public Service for Mobility and Transport is that of an expert. The bike plan therefore includes 52 bicycle measures from each member of the government. The Be Cyclist plan was validated in September 2021. A mid-term review took place in September 2022 and was presented to stakeholders on 14/09 at an event at the FPS Mobility. The final evaluation report is scheduled for September 2023. The aim would be to pave the way for the initiative to be sustainable with new plans in the future.
6. new plans in the future. An interdisciplinary and inter-federal working group will be set up to explore the possibilities for more sustainable logistics.

- Impact

The promotion of cycling will have a long-term impact on the way Belgians travel, with a view to reducing CO2 emissions. Other positive impacts are expected, such as on health, noise pollution and public spatial planning.

Reform of the Highway Code

- Objective Existing/Update

Encourage sustainable mobility and active road users by revising the Road Code.

- Flagship actions (description)

Update and improve the road code with a view to adapting traffic rules to favour active (walking, stairways) and more sustainable modes of transport (public transport, shared vehicles, etc.).

- Operationalisation (implementation)

Ideas were gathered from partners and citizens to encourage active modes of transport and, more generally, to improve traffic rules. The survey on areas for improvement was sent to the members of the Federal Road Safety Commission. Currently, proposals are being prepared to amend the Road Code in favour of sustainable modes of transport – but not only, as the reform is much broader than that. Several royal decrees and a law amending the highway code in favour of active and sustainable modes of transport were issued, introducing the midway concept, improving the visibility of bicycles, better regulating parking in places equipped with charging points for electric and hybrid vehicles, and organising self-service parking of scooters and bicycles.

- Impact

By promoting modal shift towards cycling and sustainable modes of transport, the reform of traffic regulation

aims to reduce greenhouse gas emissions. However, this impact cannot be estimated.

- Budget

/

- Other measures

Extension of B driving licence to zero-emission vans above 3,5 tonnes: pilot project. A draft Royal Decree aims to introduce, in accordance with Directive 2006/126, a pilot project for the driving, with a B driving licence, of zero-emission vans with a maximum authorised mass of more than 3.500 kg and less than or equal to 4.250 kg, using the alternative propulsion system. The pilot project will involve drivers working for the participating logistics and transport companies, who fulfil certain conditions and who will have to provide the necessary data for the evaluation of the pilot project.

Optimisation of rail transport: freight

The transport industry is a major greenhouse gas emitter. This is why a shift from road transport to greener means of transport is needed more than ever. In its Rail Vision 2040, the Federal Government aims to increase the modal share of the train to 20 % for freight transport (compared to 12 % today).

In order to achieve this objective, targeted capacity increases will have to be made with the aim of improving competitiveness in terms of rail freight transport compared to other modes of transport, depending on the means available:

- Modernisation of the facilities in the port of Zeebrugge, in particular the finalisation of works to extend the Zeebrugge-Training station in 2026.
- Adaptation of the infrastructure for running trains of 740 m (*start date: 2025*).
- Capacity extension in the port of Antwerp including electrification of line 11 and study for electrification of line 223 (rolling programme).

For 2027, the Infrastructure Manager will carry out a technical and financial study of battery trains as a solution route for the operation of non-electrified lines. The multiannual investment plan may be adapted during the mid-term review in the light of the results of this study.

In addition, actions relating to the operation of the rail network or to regulation will also be carried out by 2030 in order to improve the attractiveness of rail freight transport:

1. Improved exchange of data between the infrastructure manager and its customers.
2. Stimulating the use of railway connections.
3. Development of innovative products and solutions to stimulate modal shift to rail, in particular as regards digitalisation of existing capacity allocation tools.
4. More efficient use of existing infrastructure, inter alia through optimised management of service facilities.
5. Allocation of robust train paths 24/24 and 7/7 days for long trains (740 m) on the Belgian network.
6. Development of an inter-federal approach to build a coherent support plan for rail freight.
7. Revision of the rules on priority between trains as regards capacity allocation.
8. Search for measures to support freight in terms of internalisation of costs.

- Budget and impact

The planned budgets to encourage freight shift and the expected impact in terms of reducing CO2 emissions will be communicated at a later stage.

Optimisation of rail transport: passengers

In its Rail Vision 2040, the Federal Government aims to increase the modal share of the train to 15 % for passenger transport (compared to 8 % today). As far as passenger transport is concerned, rail must become the backbone of a comprehensive and fully coordinated public transport system, with a more frequent offer. In order to promote a modal shift towards rail transport, considerable investment will be needed in the coming years for the maintenance of the existing network and rolling stock, ensuring operational safety, improving punctuality, improving the reception of stations and digitalisation.

Significant investments will also be made to further develop the rail network (capacity extension), for example, depending on the means available:

- Modernisation of Axis 3 Brussels – Luxembourg (end date: 2031).
- Completion of extension projects initiated under the ERR (4 lanes) (date limit: 2033 for L124 and 2032 for L161).

Some capacity expansion investments will benefit both passenger and freight transport:

- Improvement of the capacity of Schaerbeek station and Schaerbeek- Training through the construction of the new line 26B and the extension of the new track beam C (completion date: 2030).
- Construction of the 3th and 4th track on railway line 50A between Ghent and Bruges (completion date: 2029).
- Double track handover of the single track section of line 130A (completion date: 2029).
- Removal of bottlenecks on the network²⁰⁵ (starting date: 2027).

An ambitious rolling stock procurement programme will be implemented to replace impaired rolling stock and expand the fleet in line with the expected growth in passenger numbers. With this new rolling stock, SNCB aims to improve passenger comfort and thus make rail transport more attractive. To this end, SNCB will use the following means:

- Increased seat comfort with more room space for legs and comfortable finish of the seat.
- More storage space under the seats (for suitcases, folding bikes, etc.).
- Uniform indirect LED lighting.
- Passenger sockets and possibly another type of connection.
- Information systems that communicate to travellers, in real time, delays, changes in the number of stops or connections and other information, both through voice announcements and visual displays.
- Increase in the proportion of rolling stock equipped with air conditioning (79 % in 2027 and 94 % in 2032).
- Replacement and air quality devices, which take into account the beacons used in the management of the health crisis 2020-2021.

²⁰⁵ In addition to the current capacity increase programmes, funds are foreseen from 2027 onwards to remove a number of bottlenecks on the network. The choice of projects will be based on the available budgetary resources, a cost-benefit analysis and the results of a detailed capacity study to be carried out by the end of 2023.

- Design of trainsets, in particular bogies, to ensure a high level of comfort.
- Implementation of a segmentation of seating positions based on passenger needs, based on a positive assessment after a preliminary test phase (such as quiet compartments, distance differentiation of 1st and 2nd class, etc.).
- Improving autonomous accessibility and increasing the number of places reserved for people with disabilities.

Depending on the purchase of new rolling stock, SNCB will increase by 2032 the number of bicycle spaces available in rolling stock by at least 50 % compared to the existing bicycle capacity at the time of the entry into force of the public service mission contract. Bicycle spaces will be located in a multifunctional area that will also accommodate PRMs, who will have priority.

Measures will also be taken to improve the quality of the rail offer in order to make it clearer, more attractive and to improve customer experience:

- Changes in product mix and pricing policy to increase the attractiveness of trains (simplification of product range and tariff offer, very attractive conditions for older people, young people and children, new products and tariffs to encourage the use of trains outside peak hours, etc.).
- As far as possible, systematisation of an offer of 4 trains per hour near the major cities and on the busiest routes, as well as a service of 2 trains per hour on the rest of the network and on fast connections between large cities (in the long term and depending on the capacity extensions of the network).
- Improving punctuality, in particular through the Punctuality Improvement Program (PIP).
- Improved commercial speed of rail services (elimination of ART for poor infrastructure conditions, optimisation of transport plans, optimisation of buffer times and stops, optimisation of reference speed of network lines, Green wave approach, etc.).

- Improved information for travellers in real time before and during the journey.
- Improving the consistency and quality of information provided to travellers, including information on other modes of transport for pre- and post-routing, and personalised information.

In the area of intermodality and in order to promote alternatives to individual cars, SNCB undertakes, inter alia, to improve coordination of timetables with other public transport operators, and to develop stations such as intermodality platforms (facilitating access for weak and active users, connection with other public transport, parking for bicycles and cars, provision of charging stations for electric vehicles, increasing the supply of bicycles and shared cars, etc.).

The supervisory authority will conduct a study on possible developments in terms of network operation and more particularly in the preparation of a target timetable for 2040 (timetable for national passenger traffic integrated with traffic generated by other rail sectors: passengers, international and freight). This timetable will aim at the government's modal shift objectives and will be divided into several intermediate steps (migration strategy). The results of this study will feed into the ongoing work on the development of the architecture of the network.

The international dimension of rail passenger transport is essential to reduce CO₂ emissions on long-distance journeys. To this end, a night train support system is being developed. If approved, it should reduce the burden of railway infrastructure charges and energy costs.

- **Budget and impact**

The planned budgets to incentivise this modal shift and the expected impact in terms of reducing CO₂ emissions will be communicated at a later stage.

In addition to the current capacity increase programmes, in the 2023-2032 multiannual investment programme an allocation of EUR 145,3 million is foreseen for investments to address bottlenecks in the network. The choice of projects will be based on the available budgetary resources, a cost-benefit analysis and the results of a detailed capacity study to be carried out by the end of 2023.

Reduce rail traction energy consumption and related CO₂ emissions

SNCB undertakes to reduce the final energy consumption of a train by at least 5 % per tonne-kilometre by 2027 (compared to 2021) and by 10 % by 2032.

In this context, SNCB ensures that its fleet of traction vehicles is renewed with less energy-intensive equipment equipped with energy meters. In addition, SNCB trains its train drivers with 'eco-responsible' driving techniques. Other economically relevant measures will also be taken to reduce the energy consumption of trains (heating, LED lighting, etc.).

SNCB will minimise the use of diesel rolling stock on electrified lines. Specific coordination will be ensured between SNCB and the infrastructure manager on the future operation of non-electrified lines in the interest of the railway system as a whole 265. This coordination will aim to implement the operation of the network with battery trains by 2030 in order to reduce and eventually eliminate the consumption of fossil fuels for passenger transport.

Finally, in accordance with Infrabel's energy strategy, a trajectory will be launched within Infrabel to enable the development of green/renewable electricity production through alternative partnerships or investments to partially cover the supply of traction energy subject to agreements with rail operators and the technical

conditions identified in advance.

- Budget and impact

The budgets foreseen to incentivise these actions, as well as the expected impact in terms of CO2 emission reductions, will be communicated at a later stage.

Towards net-zero aviation in 2050

- Existing objective/Update

Reduce greenhouse gas emissions from aviation in line with the objectives of the Paris Agreement, the European Union and the Belgian State.

- Flagship actions (description)

Today, international programmes and targets to reduce the impact of aviation on our ecosystems provide a clear direction.

To enable aviation to move towards a sustainable future in Belgium, it is essential to go even further than today in thinking and to proactively take the decisions that will reduce the environmental consequences (noise, pollution, energy impact, etc.) that the activities of this sector can have on our environment.

- Defend ambitious goals and an implementation agenda at European and international level.
- co-development and implementation of a green label for airlines (cf. Article 12 ReFuelEU aviation) (with certified data and methods allowing reliable comparison not only between airlines but also between modes of transport).
- Promote sustainable aviation fuels:

The promotion of sustainable aviation fuels in the context of ReFuelEU (development of in-house expertise);

- Monitoring and integration criteria for the Bunker-ring airport at Brussels airport;
- Support for Sustainable Aviation Fuels (SAF) pilot projects.
- Reducing the use of kerosene in airport infrastructure (eco-driving, limitation of auxiliary power units and deployment of electric vehicles).
- Sustainability of air navigation services (Skeyes) (optimisation of climb and descent operations and green approach); final cost charging scheme plus 266

“green”; integration of these aspects in the management agreement with Skeyes (including grants).

- Clean Aviation: State support to research, development and innovation through the Airbus programmes through the Federal Aviation Platform.
- Development of a long-term vision for Belgian aviation, with a particular focus on sustainability, and the final integration of this vision into the management contract with Skeyes.

- Impact

This measure aims to contribute to the objective of net-zero aviation emissions by 2050. The methodology for assessing greenhouse gas impacts exists and has been developed in the framework of the ICAO (International Civil Aviation Organisation) Action Plans. In particular, the revision of the SES can reduce air transport emissions in Europe by up to 10 %. For other measures, emission reductions are difficult to assess, not yet determined, or are not subject to direct reductions.

- Budget

EUR 4.745.000 was foreseen for 2022. The amount of the grants corresponds to the surplus of the budget foreseen to finance the costs of local air navigation services at Belgian airports, in accordance with the Decision of the Council of Ministers of 03/12/21.

Zero-emission vehicles

- Existing objective/Update

The federal government, within its remit, will accompany the regions in their decisions (modalities and dates) on the phasing out of fossil fuel vehicles.

In this context, the government will also take into account the impact of this transition on public finances (e.g. the impact on excise duties). In doing so, the government, in consultation with the regions, will also ensure the development of the necessary infrastructure and the exchange of data. This should also allow the deployment of emission-free vehicles in a flexible electricity grid.

- In the context of the negotiations on the fit for 55 package, work at European level to create the (legal) possibility to fulfil the commitment of the Government Agreement on Zero Emission Vehicles. More specifically, support a level of ambition for the revision of CO2 standards for light-duty vehicles to meet our commitment (eventually the sale of zero-emission vehicles) (May 2021-December 2023).
- Consult other relevant ministers and entities on possible proposals to switch to the sale or registration of zero-emission vehicles only (September 2021-December 2023).

- Flagship actions (description)

The implementation of this measure requires a series of clarifications:

- Definition of the scope: zero-emission vehicles, vehicle categories covered by this measure, definition of ‘affordable’.

The federal government, within its remit, will accompany the regions in their decisions (modalities and dates) on the phasing out of fossil fuel vehicles.

- Other measures

Fiscal and legal measures

- Review and adapt, if necessary, the existing or ongoing regulatory framework in order to offer an alternative to company vehicles (see Mobility Budget) with a view to continuous improvement in order to better meet energy and climate objectives²⁰⁶²⁰⁷.

As the Cash for Cars measure has been abolished by the Constitutional Court, the Mobility Budget scheme is the current alternative to company cars. Following the decision of the government to make the scheme more attractive, the mobility budget scheme has been simplified and the possibilities offered by the employer have been broadened.

- Achieve efforts to reduce externalities related to company cars (to combat air pollution, congestion and road safety) by exploring further reductions in workload and simplifying the system.
- Greening the corporate vehicle fleet.
Under the Law on fiscal and social greening of mobility, the corporate car fleet was greening. A transitional regime is introduced for diesel or petrol company cars, with the aim of all new company cars being carbon-neutral as of 2026. An ex-ante evaluation of the reform of the company car scheme was carried out in 2022 by the Federal Planning Bureau.
- Passenger cars and vans: Belgium signed the Coalition Declaration “Accelerating to Zero”,²⁰⁸ ²⁰⁹ committing to zero emissions from new passenger cars and vans by 2040 (2035 in the *main markets*). Belgium itself advocates 2030 as the exit date for non-zero-emission vehicles.
- Heavy buses and trucks: Belgium signed the Memorandum of Understanding on Heavy and Medium Zero Emissions Vehicles²¹⁰, committing to achieving an emission reduction target of 30 % and a sales share of 100 % of new zero-emission trucks and buses by 2030 and 2040 respectively.

- Operationalisation (implementation)

To this end, five preparatory phases must be carried out:

1. feasibility study
2. round table Federal Government – Regions;
3. development of a roadmap;
4. identification of actions;
5. implementation and monitoring of actions.

- Impact

The phasing out of combustion engines will have a beneficial effect on greenhouse gas emissions and is part of the wider EU Fit for 55 package, which aims to reduce greenhouse gas emissions by 55 % by 2030. Switching from internal combustion engines to electric vehicles will significantly increase electricity consumption. It is therefore important to focus on “light” and energy-efficient vehicles.

206 Federal Energy Strategy, Government Decision of 30 March 2018, <http://www.premier.be/sites/default/files/articles/federale%20energiestrategie.pdf>

Energy Pact Vision²⁰⁷ Paper; Belgian Interfederal Energy Pact: a common vision for the energy transition

208 Accelerating to zero Coalition, acceleratingtozero.org, 2022. <https://acceleratingtozero.org/>

209 International ZEV Alliance Announcement, [Zúliance.org](https://zevalliance.org), 10 November 2021.

<https://zevalliance.org/international-zev-alliance-announcement/> <https://zevalliance.org/international-zev-alliance-announcement/>

210 <https://globaldrivetozero.org/mou-nations/>

- Budget

In terms of investment support

- The National Strategic Investment Pact stipulates that most public investments will focus on the maintenance and development of integrated transport networks and services.

The total investment for these proposals is estimated at between EUR 20 billion and EUR 24 billion. Maintenance costs are estimated at around EUR 9 billion and network development costs at around EUR 13 billion. Of this, around EUR 7 billion comes from rail infrastructure investments for freight and passengers, around EUR 2 billion from inland waterways and EUR 3 billion from other transport projects. 14 % come from private sources, including PPP structures and/or tolls.

Totaal investeringen voor Mobiliteit early 2030

EUR Miljard: tussen 2019-30

PuHieke
H Private



SOURCE: Nationaal? act voor Strategische Investeringen.

Figure 4: Total investment in mobility up to 2030
Source: national Strategic Investment Pact

Flemish Region

- *Reduction in the number of vehicle kilometres*
- *Mileage levy for vans*

A legal and technical scoping study is ongoing on the extension of the current mileage levy to vans. The possibility of differentiating vehicles according to professional sectors is under consideration. Any derogation must of course be compatible with EU law and any misuse must be avoided.

In 2022, in order to implement the Flemish Government's 2021 Vision Note on additional climate measures, an exploratory legal and technical study on a mileage levy for *vans* was launched.

- *Extend the mileage levy on the road network to lorries in order to influence transport behaviour and choices*

The current mileage levy on trucks is reduced to a zero rate on certain roads.

For the category of lorries over 32 tonnes, 64 % of journeys are currently carried out on roads subject to the mileage levy. For category 12 to 32 tonnes it is 55 %, and for category 3,5 to 12 tonnes it is 50 %. This means that a large part of the freight transport chooses to use other unplanned routes or bypass routes. This increases congestion and reduces road safety. This needs to be addressed as soon as possible.

In 2024, the road network subject to the mileage levy will be extended. While today the tariff is still zero on many roads, it can be increased for main roads and port areas.

This environmental measure mainly affects the modal shift, which will shift a large part of freight transport from road to water and rail.

- *Greening the fleet*

- *Fiscal measures and financial incentives for car greening will be used*

In order to reach the 2025 and 2030 targets, in the next 5 years zero-emission vehicles need to become more attractive.

In order to ensure the envisaged transition to zero-emission cars, the quality supply (number of models, number of cars offered, range of activities, etc.) of zero-emission vehicles will have to be increased in the coming years, including in the cheaper segments, and lower their purchase price. Vehicle taxation is an important lever for Flanders to make the car fleet greener and accelerate the transition to zero-emission vehicles. To this end, a survey is being prepared to provide the necessary information for the next government to choose the most appropriate instrument.

We also continue to explore legal options and urge the EU and the federal government to take responsibility in this regard.

- *Continuation of financial stimuli for greening environmentally friendly road freight transport*

For the greening of trucks (electric batteries and hydrogen), the green bonus + will also be used.

- *Exemption from the kilometric levy for the transport of zero-emission goods*

In view of the EU Toll Directive, an exemption from the mileage levy will be introduced for the transport of zero-emission goods. This is a temporary exemption which will be phased out. For example, even more than today, the mileage levy for freight transport can become a steering tool that can help accelerate the shift towards zero-emission freight transport.

This will incentivise the transport sector to invest in zero-emission freight transport, which today is even more expensive than transporting goods with a motor vehicle that drives fossil energy, and foreign hauliers to book their zero-emission trucks for journeys through Flanders.

- *Installation of the Top Team Zero-Emissie Vrachtervervoer and a Zero-Emissie Vrachtervervoer Taskforce as part of the VIAVIA project*

Developments around zero-emission trucks are growing. In early 2023, the VIAVIA project (Vrachtervervoer Intelligent aanpassen en en Vergroenen via een Integrale Aanpak) was launched for this purpose. A Top Team Zero-Emissie Vrachtervervoer and a Zero-Emissie Vrachtervervoer Taskforce will be set up as soon as possible. They will look at how authorities can engage with industry and support it in accelerating the transition to zero-emission freight transport. Together, they need to put in place a comprehensive strategy, policy recommendations and concrete measures.

- *The aim is to ensure zero-emission urban distribution*

Zero-emission distribution is encouraged, so that as of 2025 only zero-emission vehicles will still be able to deliver in city centres. Urban logistics will be made greener by the implementation of the Zero Emission Distribution Action Plan, approved by the Flemish Government on 16 July 2021.

To this end, a concrete implementation plan will be defined in 2023 (by 2030) and regulations will be put in place to facilitate the introduction of zero-emission urban distribution by local governments, in line with low emission zone regulations.

Pilot projects will be launched in 2023 to test zero-emission zones for freight transport.

In order to achieve zero-emission urban distribution by 2025, cities, VVSG, businesses and sectors have an important role to play. In consultation with local administrations, businesses and sectors, accompanying measures that could be useful will be examined in 2023-2024. The Green Deal Stedelijke Logistiek partners will also be involved in development. In 2024, we are also planning a closing event of the Green Deal where the results achieved will be explained.

- *Maximum electrification of the Flemish Authority's car fleet*

The Mobility Action Plan aims to achieve the objectives of internal mobility.

At the end of 2018, the Flemish Government decided no longer to purchase new service cars equipped with conventional petrol or diesel engines as of 2021. Concretely, as of 2021, we will purchase or lease only fully electric (BEV and FCEV) or plug-in hybrid vehicles (PHEV) with CO₂ emissions not exceeding 50 g/km, and CNG passenger cars.

As of 2024, the Flemish Authority will purchase or lease only zero-emission passenger cars (BEV or FCEV). Maximum efforts are also being made towards greening for the purchase and rental of other vehicle categories, taking into account the minimum eco-labels of the KBBJ 2021 circular.

It focuses on installing the necessary charging infrastructure, actions to change user behaviour, limited financial incentives, load shedding entities, bike infrastructure (charging), mobility studies, framework contracts for eco-driving and environmentally friendly vehicles, etc.

The most polluting vehicles will be phased out. Actions outside the scope (e.g. the sustainability of commuting) are also undertaken on a permanent basis. Entities owning ships under own management will take stock of these CO₂ emissions and set a achievable but ambitious target by 2024 at the latest.

- *We commit to making buses greener*

Flanders operates public transport buses with De Lijn and has chosen to switch to zero-emission buses.

At the level of the De Lijn fleet, the greening plans are continuing as agreed. Since 2019, only zero-emission buses are still allowed under the new procedures for the purchase of De Lijn in Flanders. The 2023-2027 public service contract meets the objectives set out in the Government Agreement 2019-2024: by 2025, urban areas will be served optimally without emissions and by 2035 there will be zero-emission public transport across Flanders. As a first step, they will be electric vehicles. Operators will be involved to the greatest extent possible in achieving these objectives.

In the following years, greening took the form of a gradual phasing-in until 2035:

- Replace De Lijn's vehicles with electric buses.
- Replace operators' vehicles with electric buses.
- Provide the necessary charging capacity and charging infrastructure.
- Adapt the depots at De Lijn and the operators for charging and parking electric buses.
- Provide software solutions necessary for the management of deposits and loads. For the

electrification of its operators' fleet, De Lijn has developed a compensation scheme for the greening of its operators. In addition, De Lijn aims to open up its power stations to third parties so that they can charge

their vehicles there. De Lijn's ambition to reach 100 % zero-emission driving in Flanders by 2035 requires the gradual purchase of different types of e-buses (e-standard, articulated e-buses, e-city bus, e-tram-bus articulated), charging infrastructure and also in 2023, the necessary decisions and orders will be made to that effect.

- The accelerated abolition of old Euro 3 and Euro 4 buses.
- Support greening among operators.

- *Incentive mechanism for new zero-emission passenger cars and shared mobility*

The federal measure on company cars provides a strong incentive for the purchase of zero-emission company cars. The private market is therefore left behind. As the purchase price is declining at a slower pace than in previous studies, it is important to temporarily support citizens and providers of shared mobility in this process, as has been done in our neighbouring countries.

A first incentive mechanism is being prepared as part of the preparation of the 2024 budget to support individuals and component suppliers in a new zero-emission car.

- *Incentive mechanism for zero-emission second-hand cars and shared mobility*

A study was commissioned by MOW on possible incentives that Flanders can develop to keep zero-emission cars in Flanders at the end of the leasing period via the second-hand market.

An incentive mechanism is being prepared as part of the 2024 budget outline to support individuals and component suppliers in a second-hand zero-emission car.

- *Measures and charging infrastructure for the greening of motorcycles are introduced.* Measures are being developed to make motorcycles, two, three and four electric wheels more attractive.

Charging infrastructure is also being deployed for this target group.

- *Accompanying policy*

- *Reduction of vehicle kilometres and modal shift*

- *Gradual deployment of basic accessibility for people*

Today, we are well committed to the operational and gradual deployment of basic accessibility. The introduction of basic accessibility, as defined in the Basic Accessibility Decree of 2019, should contribute to a modal shift through, on the one hand, stratified, efficient and demand-driven public transport, complemented by tailor-made transport and, on the other hand, seamless connections between the different modes at the Hoppin points. By 1 January 2024, more than 80 % of basic accessibility will be deployed. By deploying this measure, we encourage combined mobility, which should help reduce car use (and emissions).

- *Improving the quality of public transport*

To achieve a modal shift, there must be sufficient supply and public transport must be easy, comfortable, safe and reliable. Public transport is being developed proactively to play a stronger, leading and

competitive role, maximising the capacity and potential of the public transport system.

The new public service contract signed with De Lijn in early July 22 focuses on user-friendliness, sustainability and efficiency. De Lijn is also committed to high-quality and attractive public transport. Work is ongoing on punctuality, improvement of real-time data, accessibility and performance. In addition, De Lijn is the mobility partner of local administrations and transport regions in the design and implementation of progressive basic accessibility.

Railways are the first layer of basic accessibility and are important for reducing the number of kilometres travelled by vehicles on the road due to the shift of passenger transport from road to rail. The policies of the competent federal authority therefore need to be properly monitored and aligned. In order to encourage passengers to take the train over longer distances, the routes need to be strengthened and well connected to public transport and staging points.

- Investing in staging points to promote the shift to sustainable modes of transport.

The Hoppin points facilitate the transition from one mode of transport to another.

The Flemish authorities, in cooperation with the VVSG, provide practical support to local administrations for smooth and high-quality implementation. To this end, subsidies are granted for the construction of accessible stops and the setting up of Hoppin points, among others. Since 2022, the AWV has been offering an Ontwerpwijzer Hoppinpunten.

The regional transport councils (Vervoerregioraden) designated almost 2 000 Hoppin points. Road managers (AWV and/or local authorities) will ensure that they are carried out. In 2023, the AWV and local administrations will make an additional 310 Hoppin points. Some 600 points will be completed by the AWV by the end of 2026.

- *We achieve a sustainable modal shift in collaboration with transport regions*

Transport regions are an important partner in reducing vehicle kilometres and in modal shift. They have a say in the deployment of basic accessibility, Hoppin points and tailor-made transport, with autonomy in the choice of actors and shared systems (cars and bicycles).

Within the transport regions, a local mobility control system is organised, independent of the mode of transport and based on actual and potential transport flows. The regional mobility plans have been developed with a vision of the future for all modes of transport within a transport region and will also include concrete action plans tailored to each transport region. An environmental report shall be drawn up for each transport plan and the conclusions and solutions shall be integrated into the regional transport plans.

- *Partial systems are being deployed*

The growth of shared systems, including in the context of tailor-made transport as part of basic accessibility, encourages combined mobility, which reduces the pressure on public space and the number of kilometres travelled by vehicles. Carpooling significantly reduces the need for private cars, while bike sharing makes cycling more accessible as a mode of transport. In cities, people will be less inclined to buy their own car and will more easily switch from cycling to other modes of transport. In more rural areas, it will be less necessary to have a second family car and we can count on shared bikes for journeys *last mile* (last mile). As a result, more sustainable solutions will be chosen more quickly.

The shared mobility foreseen in the Green Deal in residential environments must ensure that the presence of shared (electric) mobility in residential environments becomes evident for local authorities and project developers, allowing all local residents to be mobile in a quality living environment with efficient use of (public) space. Through the Green Deal, positive experiences and research are used, through an active exchange of knowledge and focusing on common interests.

Under the Climate and Energy Local Pact, 294 local administrations have the ambition to reach 1 shared electric cars per 500 inhabitants by 2030. A guide²¹¹ has been drawn up to help them in this task, which contains good examples. ABB is considering the desirability of offering a shared mobility scoreboard to local administrations in collaboration with the sector.

- *Provide attractive infrastructure for active travel*

Attractive cycling and pedestrian networks (i.e. coherent, safe, comfortable, direct, recreational), equipped with the facilities needed for cyclists, contribute to safe and active mobility. The share of cycling in total journeys in 2019 was 11 %, commuting was 13 %, 14 % and 18 % respectively if e-bikes are included²¹². The target is to increase the share of cycling to 20 % of journeys by 2025²¹³. We want to increase the share of cycling to 30 % by 2040.²¹⁴

Flanders is committed to completing the network of supralocal functional cycling routes (Bovenlokaal Functioneel Fietsroutenetwerk), to make cyclostrades and to maintain and improve cycle paths along regional roads.

Cyclostrades provide fast, safe and direct links between urban kernels, employment clusters and important nodes of public transport. The Flemish Government invests at least EUR 300 million per year in cycling infrastructure.

- *Promoting active (functional) and recreational travel*

By making cycling more attractive as a mode of transport, we can increase the number of bike journeys and thus reduce the number of kilometres travelled by vehicles. The share of (electric) bicycles in total travel was 14 % in 2019.²¹⁵ To achieve these goals, cycling must be safe, comfortable, efficient and economical.

Quality infrastructure is the most important basic condition for safe, comfortable and efficient cycling. The construction and maintenance of the necessary infrastructure requires significant investments. More than EUR 300 million will be invested in cycling infrastructure every year from 2021 onwards. This level of investment will continue tirelessly, focusing on the realisation and optimisation of the network of supralocal functional cycling routes (Bovenlokaal Functioneel Fietsroutenetwerk – BFF), with a particular focus on cycling motorways, which ensure smooth and safe cycling accessibility to residential centres, schools, hotspots and main job clusters. Local administrations and provinces are supported in the development of the necessary cycling infrastructure through, inter alia, the Fietsfonds, for which EUR 15 million is made available each year, and grants for safe school environments.

²¹¹Available on [Inspiratiegids 'Inzetten op koolstofvrije deelmobiliteit dankzij het LEKP' – Autodelen](#)

²¹²Department of Mobility and Public Works (MOW), Survey of Travel Behaviour 5.5, 2019. We do not have figures for 2020 and 2021. However, a new survey on travel behaviour (Onderzoek verplaatsingsgedrag – OVG) is ongoing and may give new figures for 2021/2022.

²¹³See the Declaration of Intent 'De Grote Versnelling', available at: https://www.degroteversnelling.be/wp-content/uploads/2021/04/20210408_Intentieverklaring-De-Grote-Versnelling-1.pdf

²¹⁴New vision on cycling

²¹⁵'Onderzoek Verplaatsingsgedrag Vlaanderen (2019-2020)', Instituut voor Mobiliteit in opdracht van de Vlaamse Overheid – Departement Mobiliteit en Openbare Werken, November 2020

In addition to investing in infrastructure, we are maximising the use of data and innovation to make cycling smoother and safer. For example, MIA deploys drones and cameras that can proactively analyse potentially dangerous situations. We are setting up pilot projects for new materials and structures for cycle paths with comfort, safety or environmental benefits, and in collaboration with the Department of Economy, Science and Innovation (EWI), we are continuing to develop the Mobilidata project to collect and use data on different modes of transport intelligently, for example to obtain conflict-free traffic lights and ensure better traffic for cyclists.

Finally, we are stepping up efforts **to prevent bike theft** by launching an efficient and uniform system for recording bicycles with the federal authorities and other regions.

- *We encourage teleworking and digital training*

Emphasis is also placed on alternatives to travel, such as teleworking. To promote **teleworking**, collaboration with the business community is being developed to further develop it, through a charter or a sectoral agreement. Teleconferencing and digital training have also proved their worth. Together with education and training institutions (VSV...), it is discussed how to offer a fixed digital offer in the policy areas of education and work.

- *Investments are made in multimodal nodal points to promote the transshipment of goods to sustainable modes of transport.*

To ensure both good synchronomobility²¹⁶ and the efficient organisation of logistics, there is a need for well-subdivided modular networks. This gives companies/shippers more choice to transport goods and can make better use of available transport capacity. To achieve an integrated multimodal transport system, we use a corridor approach and develop a hierarchical network of nodes that are multimodal and where users can switch from one mode to another. A good exchange of data is essential to this end. Corridors include as many modes of transport as possible, such as cycling, road, rail, water or pipelines. Multimodal connections, and in particular nodes, enable efficient spatial and economic organisation of the flow of goods and people. A stronger intrication of several networks implies a perfect exchange of data between different modes and the proposal of personalised mobility solutions. In the logistics field, technological developments simplify information flows and facilitate collaboration between actors in the chain. As a result, there is a real synchronomodality in which the transport of goods by inland waterway and rail plays a more prominent role. The dispartitioning of different modes, as well as public, shared and private transport, will radically change mobility as we know it today.

This calls, in particular, for closer collaboration between public and private parties on the one hand and with many other social actors and citizens on the other.

- *Promoting inland waterway transport through investments in inland waterways*

A well-developed inland waterway network with sufficient transshipment facilities is essential to achieve the desired modal shift in freight traffic.

Flemish mobility and public works policy strengthens the growth of inland navigation by developing well-connected modal networks and innovative transshipment points at attractive tariffs. We are working on a future-proof transport network (developing maritime traffic management, mentioning multimodal urban

²¹⁶ Synchronomodality: mobility in which different modes of transport are combined for the movement of goods and where it is possible to switch or tranship smoothly between different modes of transport.

terminals for sustainable urban logistics) and removing the current missing links and bottlenecks by developing three main axes that help improve the accessibility of seaports.

- *The increase in the number of kilometres travelled by lorries will be limited by modal split in ports, in collaboration with port administrations.*

As major logistics nodal points, seaports play an important role in limiting the growth in the number of kilometres travelled by trucks and in achieving the proposed shift to rail and inland waterways. The port administrations themselves have put forward ambitious modal split targets in 2030. Together with port administrations and other partners, including the federal authority, the Flemish Authority wants to see what concrete steps can be taken in the short and medium term to achieve these ambitious goals. This may include, but are not limited to, the following:

- Reservation of landings for inland waterway vessels in port
- Stronger (tax) regulations for polluting modes
- Measures to support inland waterway and rail transport in ports
- Mitigation measures to reduce the number of lorries on roads

The main policy areas of this strategy for the hinterland of seaports are data sharing and the need to convince different logistics actors to use rail and inland waterways more often. Since 2018, the Flemish Authority has launched initiatives in collaboration with port administrations to improve port connectivity with the hinterland, facilitate modal shift and make handling in ports more efficient.

A subsidy scheme is also envisaged to promote modal shift and hinterland connectivity of Flemish seaports by bundling inland waterway transport volumes and/or by bundling rail volumes.

The targets for ports are included in the individual port agreements concluded in December 2021. Concrete agreements are reached on the contribution of port administrations to Flemish modal shift projects.

- *Rail transport will be encouraged by investments in the expansion of the rail network.*

The *Vlaamse Spoorstrategie* defines the desired developments in rail transport. In 2018, the Cooperation Agreement between the Federal Authority and the Regions on the financing of strategic railway infrastructure was concluded²¹⁷. This collaboration agreement ensures that several studies and infrastructure works are carried out. Part of these projects will be co-financed by the Flemish Region with EUR 100 million. Flanders monitors and supports these projects. It is called for calls to be made to the federal authorities to invest more in rail infrastructure and supply in order to encourage modal shift to rail. This modal shift can only be achieved through close collaboration between federal authorities, regions and other stakeholders in the sector on better infrastructure, better regulation, support mechanisms, operational improvements and improved intermodality. An expansion of the pipeline network could be considered as an alternative mode of transport.

- *Greening the fleet*

- *Differentiation of CO₂*

The possibility of maximum differentiation according to the environmental characteristics and CO₂ emissions of all vehicles subject to the mileage sampling, so that the sampling can have an impact, is also

²¹⁷Cooperation agreement of 5 October 2018 between the Federal State and the Flemish Region on the implementation of priority rail projects.

explored. After this study, the opportunity will be assessed and industry and employers' organisations as well as other organisations and experts will be consulted on the subject.

- *The focus is on the future by investing in associated recharging/refuelling infrastructure.*

The development of fast recharging and refuelling infrastructure will also be continued. The target is 35 000 load equivalents by 2025. For 2030, the target is currently 100 000 EPCs and ultra-fast charging infrastructure every 25 km along the main traffic routes, but this figure will be further refined as required. If the electric car market develops as planned, it could serve a fleet of 1 million electric cars. This objective is aligned with the stricter objective of the Local Energy and Climate Pact: 1,5 load equivalent per 100 inhabitants by 2030, in addition to the planned (ultra-) fast charging infrastructure along motorways.

In 2022, budgets were set for advance warning along motorways so that the user always knows where to charge.

- *Recharging and refuelling infrastructure will be further developed for vans and trucks.*

The charging behaviour of commercial vans is different from that of passenger cars. Virtually all sectors use vans and have their own usage profiles, which can vary considerably from one sector to another. The charging and driving behaviour will therefore be diversified. It is essential for entrepreneurs to ensure the safety of their business. Part of the charging infrastructure will be located in (private) depots. However, vans will also use semi-public and public recharging points. In 2022, the CPT-2022 call was extended to private charging infrastructure for vans for urban distribution. In early 2023, a grant call was launched specifically for the recharging infrastructure for heavy transport (trucks and buses) complemented by charging facilities for zero-emission urban distribution, meaning that the wider deployment of freight charging infrastructure now also has a green light.

For trucks, a well-equipped network of charging points should also be set up. Trucks are expected to load mainly on private sites (e.g. depot). A network of public charging points is also necessary to ensure the reliability of logistics operations. Europe makes it clear that the TEN-T network needs to be adapted in the short term (3-8 years) to enable electric freight transport. A study will identify potential, technical and spatial needs for truck charging infrastructure. This will include setting up pilot sites.

- *There is a call for ambitious provisions on CO₂ emissions per vehicle at European level*

European policy is also, to a large extent, an important driver of the transition to low and zero CO₂ vehicles. In doing so, we are still taking an ambitious position in the legislative files on decarbonising the European fleet (passenger cars, vans and freight).

European and international initiatives for inland waterway and maritime transport will also be monitored and supported. The Central Commission for Navigation on the Rhine (JRC) is working on the introduction of an emission label. Efforts are also being made to simplify regulations on fleet renewal, alternative fuels, eco-navigation and the introduction of an emission label for ships using inland waterways.

Similarly, European initiatives on decarbonising aviation and ensuring a level playing field for sustainable air transport are being monitored and supported from Flanders.

- *The use of light-duty, mainly electric vehicles is encouraged*

Light electric vehicles (LEVs) hide a huge ecological potential, both for commuting and logistics. This

category of vehicles ranges from electric monospaces and scooters to bicycles and mopeds, to certain four-wheel vehicles, also used for the transport of goods. A specific policy is being developed for light electric transport. Key elements are incentives for the use of light and therefore energy-efficient and space-efficient vehicles, simple regulations based on instantaneous speed and not on the type of vehicle, adapted road, parking and charging infrastructure, attention to quality (labels), accreditation and standardisation, tax benefits and positive campaigns. To promote this softer mobility, work is ongoing to create coherent, comfortable and safe networks for light (electric) vehicles, such as bicycles or e-bikes.

- *We commit to making taxis greener*

Taxis are mainly used for short distances in an urban environment. Greening continues with a view to creating zero-emission urban environments. The regulatory framework for taxis was amended in 2019 by the Taxis Decree and its Implementing Order. It²¹⁸ contains staggered conditions for the registration of taxis (2020, 2025, 2030). It also builds on the results of the Clean Power for Taxis project. In 2021, the regulatory framework for the deployment of charging infrastructure was approved, with specific provisions for the taxi and shared mobility sector. From 2030 onwards, the IVD will only register zero-emission taxis²¹⁹.

- *We commit to greening the shared mobility sector*

The shared mobility sector is still included in (new) regulations, concessions or grant projects for the deployment of charging infrastructure. To ensure that all shared mobility is zero-emission as soon as possible.

- *Sustainable transition to greener aviation*

Together with the three airport operators, Flanders will lead the sustainable transition towards greener aviation. It will focus on the diversification of airport charges and technological developments in the aviation industry, with a view to focusing on sustainability and innovation at Flemish regional airports. In summary:

- Mandatory SAF (Sustainable Aviation Fuel Fuel Fuel Fuel for Aviation) to significantly reduce CO₂ emissions.
- Encourage electric aviation. As regards flight training and recreational aviation, the (partial) transition to electric aviation will take place in the relatively short term.
- Not only will flights be more sustainable in the future, but airport operators will also maximise their commitment to renewable energy. This mainly involves deep electrifying ground traffic and freeing up space for renewable energy production.

- *Communication on zero-emission vehicles and charging infrastructure*

Communication is crucial in the transition to zero-emission vehicles, including through campaigns launched by partners and/or authorities. Indeed, campaigns and related initiatives are still needed to inform citizens about ecological alternatives to the combustion engine and guide them in their choice. These are objective data on different types of vehicles and loading and refuelling systems. Information will also be made

²¹⁸<https://www.vlaanderen.be/decreet-over-het-individueel-bezoldigd-personenvervoer-taxidecreet>

²¹⁹Directorate for Vehicle Registration of the Federal Public Service Mobility

available to the media proactively, among others.

- *A Flemish policy to encourage the greening of vessels.*

In order to continue achieving environmental gains from road to alternative modes of transport, the inland waterway fleet also needs to be sufficiently developed. In addition, innovation in ship concepts and propulsion can improve the competitiveness of inland navigation. The CPT vision approved by the Flemish Government on 9 July 2021 also includes actions on the greening of vessels: facilitate and support innovative pilot projects and establish a roadmap in a European context.

In order to provide a clear pathway for the greening of inland navigation and to involve all actors involved in inland navigation, a Flemish Green Deal for inland navigation is being launched. This Green Deal aims to achieve optimal greening of inland waterway transport through emission reduction targets by 2030, with sustained targets and realistic actions that remove obstacles and bring about changes on the ground by 2026. Work continues on the concrete development of the Vlaamse Green Deal Binnenvaart.²²⁰

- *Autonomous navigation and automation*

Innovation and sustainability go hand in hand. With remote controlled barges (including a pilot project on the Yser), we are making progress. Ultimately, we will put in place a legal framework that will make autonomous navigation possible on a permanent basis.

- *Shore-side power supply*

The shore-side supply network for inland navigation will be developed and its use encouraged. This implies close collaboration with port administrations.

We are exploring the possibility of anchoring the supply and use of OPS facilities in VLAREM when constructing new platforms and, in addition, on existing platforms. The European proposal to impose an obligation to provide shore-side electricity facilities in maritime ports for container ships and passenger ships by 1 January 2030, as well as the European proposal to encourage the use of shore-side electricity supply by ships, are supported.

- *Collaboration, behavioural change and additional CO2 reduction potential*

Driving behaviour plays a role in the real emissions of a vehicle, in particular the speed and fluidity of traffic.

- *Intelligent traffic lights (IVRI) and the green wave will be further developed.*

The action plan will be implemented to improve traffic flow and safety at traffic lights controlled by traffic lights by equipping crossroads with 'smarter' lights that react more dynamically and flexibly to the real-time traffic situation at the relevant intersection or by adapting and optimising the lighting adjustment system according to the active road user. (Furniture and Furniture 2.0)

²²⁰Communication from the Flemish Government: "De weg naar een Vlaamse Green Deal Binnenvaart voor een versnelling van de vergroening van de binnenvaart." (VR 2022 2312 MED.0486/1BIS)

- *Further development of effective mobility monitoring*

The development of a highly efficient mobility monitoring system in order to better analyse the actual movement behaviour of the Flemands.

- *Exploring the potential of autonomous and automated vehicles*

As autonomous vehicles can take optimal account of the current traffic situation (driving speed, input and exit insertion, adjustment of traffic lights, etc.), they contribute to more regular driving behaviour, thus reducing fuel consumption and emissions. A strategic study on autonomous shared transport was carried out in 2022. It describes the impact of robotaxis and autonomous passenger transport and defines the roles and responsibilities of the public and private actors involved. The results of this study will serve as a basis for further work. Depending on the direction chosen, the extent to which this will contribute to reducing emissions will be estimated. To increase ambition in this regard, a working group is being set up.

- *Optimal use of the traffic network for better traffic flow*

The objective of a robust road network is to digest traffic on the main road network where and when it can, by diverting it to the lower road network and supporting it only when necessary to reach the destination and in the event of disasters. In this way, it will oppose transit traffic and should also leave sufficient space for other, more sustainable modes of transport. This problem is addressed in different ways, through a new road categorisation, traffic management and the Mobilidata programme. The challenge to improve traffic is to avoid suction effects and thus not attract additional traffic.

- *Study on behavioural change in sustainable travel*

Travellers, shippers and businesses need to change their behaviour by using more often sustainable modes. Achieving behavioural change requires spatial organisation that supports climate-friendly mobility and logistics (see above), but also attractive (such as excellent climate-friendly transport opportunities), motivating and exciting measures.

It is also strongly focused on the rational choices we make every day as mobility users. We know about behavioural psychology that our behaviour is not always guided by rational considerations (such as price). We are often guided by emotions, automation and social/cultural contexts.

A better understanding of travellers' behaviour should help us achieve mobility objectives. It is not only about collecting data on how people move, but also understanding why they move in this way and how these choices can be steered in the desired direction.

The survey of travel behaviour (Onderzoek Verplaatsingsgedrag – OVG) provides information on how people are moving. Starting from the OVG 7 (2023) fieldwork, the survey on travel behaviour aims to obtain representative results related to passenger behaviour both at the level of the Flemish Region as a whole and at the level of each transport region.

- *Environmentally friendly driving is also encouraged at candidate/driver level.*

Candidate drivers (all driving licences combined) are encouraged to engage in environmentally friendly driving behaviour as part of their preparatory course, both theoretical and practical. In addition, professional drivers may opt for a practical module on eco-driving in the context of continuing training code 95. It should be included in the assessment of the practical driving licence test.

- *Collaboration is being developed with market players, businesses and knowledge institutions, citizens, associations and civil society organisations to reduce transport demand, move more from one means of transport to another and focus on sustainable transport*

The dispartitioning of different modes, as well as public, shared and private transport, will radically change mobility as we know it today. This calls, in particular, for closer collaboration between public and private parties on the one hand and with many other social actors and citizens on the other.

Travellers and businesses need to change their behaviour to more often use sustainable modes of transport. To this end, sectoral organisations, businesses, schools and associations are encouraged to take measures to encourage children, citizens and businesses to choose sustainable modes of transport and to move smoothly from one means of transport to another, thus reducing the mileage travelled on roads.

Efforts are being made to conclude *collaborative agreements with industry organisations*, companies and associations to undertake actions to reduce road mileage (both for commuting and leisure) and to make leisure travel more sustainable.

The effectiveness and longer-term impact of support measures should also be examined through ex-post analysis in order to be able to make adjustments where necessary. After all, it is important that they contribute to the desired systemic change.

- *The necessary spatial conditions are created for climate-friendly mobility and sustainable accessibility*

In the strategic vision of the Space Policy Plan for Flanders, the Flemish Government outlines the main lines of spatial development in the coming decades. The aim is to provide more people in 2050 with the opportunity to go to work or school on foot, cycling or possibly in the future with other sustainable modes of transport and to find basic services in their direct living environment. To this end, new places of living and work can be drawn as much as possible to collective transport nodes and infrastructure concentrations. Logistics activities should preferably be developed in regional logistic road nodes linked to the continental links of the trans-European transport network. Multimodal accessibility is very important in this respect.

In the context of the implementation of the Strategic Vision of the Space Policy Plan for Flanders, the following measures will be taken, inter alia, to this end:

- In well-located locations, spatial efficiency is qualitatively increased without exceeding space load capacity.
- It is studied how functions (economy, industry, production, etc.) can be intertwined and pooled optimally in logistics centres.
- Proactive and forward-looking supply management for workplaces is reviewed and implemented.
- The multimodal and maritime accessibility of the five international logistics clusters will be optimised.
- Based on the principles of public transport development and proximity, transport nodes must be adapted to the desired user profiles.
- From social, economic and employment clusters, engage in the supply and use of sustainable modes of transport. This, for example, through business mobility plans, school transport or logistic clusters, including the grouping of types of goods.
- Development of user-friendly and safe public spaces that meet the needs of target groups, among others.
- Responding to evolving user needs and opportunities for

exchanges and transfer and transshipment points (including for urban logistics and ports) and developing a future-oriented transport and consolidation model.

- Regional sustainable mobility plans (including freight transport) and mutually reinforcing spatial plans. Here, different objectives frameworks are aligned and linked (including economic functions, residential functions, climate, air quality, emissions, clearing, noise, etc.).

- *Aviation and maritime transport*

Despite the efforts already made, further action is needed in the period 2021-2030 to make international aviation and navigation compatible with the achievement of the long-term global goals of the Paris Agreement.

The measures will cover, inter alia, the following:

1. Supporting an ambitious international and European policy for the aviation and maritime transport sector

Flanders commits to continue, together with other Belgian entities in IMO and ICAO, its efforts towards short-term measures that enable the transition of bunker sectors to a climate-friendly society, both through operational, technical and market-based measures.

International aviation (= all flights departing from the EU) is included in Europe's National Determined Contribution (NDC) under the Paris Agreement and is therefore part of the European target of reducing greenhouse gas emissions by 55 % by 2030 compared to 1990.

Additional EU policies – with a higher level of ambition than what ICAO and IMO have proposed so far – for international aviation and maritime transport are therefore needed. This need has been met by various initiatives of the European Commission's 'Fit for 55' package, including the inclusion of maritime emissions in the EU Emissions Trading System, the tightening of the EU Emissions Trading System for the aviation sector, the REACT-EU Regulation that stimulates the supply and demand for sustainable aviation fuels in the EU, the (draft) Regulation on the use of renewable and low-carbon fuels in maritime transport (FuelEUMar) and the (draft) Alternative Fuels Infrastructure Regulation (AFIR) which aims to develop sufficient infrastructure for sustainable fuels.

Tax policy can play an important role in rationalising the demand and cost of international air and maritime transport.

The Flemish Region supports the initiatives taken at European level for harmonised carbon pricing in aviation and maritime transport.

2. Explore how Flanders can contribute to the supply of climate-friendly fuels

The potential of propulsion and pure electric batteries is relatively limited for these sectors, given the large amounts of energy used by seagoing ships on their voyages and the fact that aircraft need to remain relatively light. Even in the long term – around 2050 – aviation and maritime transport will remain at least partially dependent on liquid fuels. The development, availability and commercialisation of climate-friendly fuels, which can prove their sustainability throughout their life cycle, become very important and also offer opportunities in the economic field. Flanders will explore how it can maximise these opportunities and how it can contribute to an increased supply of advanced biofuels and synthetic fuels based on renewable energy storage for aviation and shipping.

The Flemish vision on hydrogen, the Flemish vision on CCUs (S) and the framework for transition

to a low-carbon Flemish industry are already addressed in the chapter on research and development.

3. Reducing the climate impact of air and maritime transport in the context of the Flemish vision for regional ports and airports

At the end of December 2021, the Flemish Government 221 approved a Flemish port strategy. This strategy sets out the strategic objectives and launches of Flemish port policy for the next ten years. One of its three strategic objectives is to achieve sustainable growth and development. The measures to reduce CO₂ emissions in the maritime sector are as follows:

- Greening the Flemish Authority's fleet and seaports.
- Expansion of shore-side power facilities, not only for inland navigation but also for maritime transport. This is in line with the planned AFIR and FuelEU Mar Regulations which, inter alia, require Member States to make onshore energy available to container and cruise ships by 2030.
- Environmental Shipping Index (ESI) = voluntary international scheme representing the environmental performance of ships by a score. In Flanders, this label is used to determine the amount of port fees to be paid, i.e. the higher the ESI label, the lower the port fees payable.

At 222 the end of December 2022, the Flemish Government approved the Vision Note on Regional Airports, which aims to ensure sustainable growth at Antwerp, Ostend Bruges and Kortrijk-Wevelgem airports. The Vision Note provides a framework in which Flanders, together with the three airport operators, can lead the sustainable transition towards greener aviation. The diversification of airport charges, favouring greener aircraft, is the first pillar. The second pillar is the commitment to technological development (sustainable aviation fuels and electric flight). An Aviation Council will be launched in 2023 to work on concrete initiatives leading to a sustainable transition towards greener aviation. For each airport, a detailed master plan has been prepared by 2040 in order to give concrete expression to the image of the future described in the Vision Note.

Region Walloon

Given the strong growth in **transport** and its negative impact, the Walloon Government has set objectives through the FAST vision set out in a Regional Mobility Strategy (SRM). A number of projects have been identified, many of which are currently being implemented in whole or in part: redefining and increasing public transport services, drawing up a new Wallonia cycling plan, launching the Charleroi Urban Mobility Plan, Infrastructure and Mobility Plan for all PIMPT), almost free pricing for young people and older people, etc.

However, it must be acknowledged that the objectives set out in the FAST vision are particularly ambitious and that their achievement requires the swift implementation of additional measures on different levers for both passenger and goods transport.

In addition, in order to understand the limitations faced by the evolution of the transport system, three key features also need to be borne in mind:

- The reality of transport is poorly adapted to territorial constraints and Wallonia (road transit region) is highly dependent on strategies/actions/measures implemented in our (close) neighbours.

221 https://assets.vlaanderen.be/image/upload/v1643021170/MOW_Bro_Havenstrategie_24_01_22_DEF_LR_iunngl.pdf

222 https://assets.vlaanderen.be/image/upload/v1673016486/VR_2022_2312_DOC.1568-2_Visionota_luchtvaart_-_bijlage_g2h17o.pdf

- Competences are fragmented and fall into levels of powers and/or decisions ranging from the municipality to Europe.
- Raising the issue of emissions from the sector cannot be limited to ‘acts’ and modes of transport alone, since they are carried out to perform functions other than transport itself.

Attention should also be paid to ensuring that climate-related mobility actions do not come at the expense of more precarious audiences and are an opportunity for the development of high-quality transport offers and services and public spaces for all.

At the same time, given the diversity of stakeholders involved, mobility governance is of crucial importance. The methods and methods of this strategy, particularly in terms of unifying its strategic steering and openness with other regions and levels of government, are set out in the Regional Mobility Strategy, both for people and goods.

Finally, measures relating directly **to spatial planning are** a necessary condition for achieving mobility objectives. They coincide with the objectives set out in the territorial development plan set out in Chapter 2. They also contribute to the adaptation to climate change developed in Chapter 5.

In addition, in the development of transport supply and in spatial planning, it is necessary in particular to: take into account gender differences in trajectories and mobility practices; develop a spatial planning policy that promotes solidarity and contributes to a sense of safety and inclusion for women in public spaces; and to increase the participation of women in consultation and policy development.

All measures and actions in this section are grouped according to the three strategic axes, namely:

- Axis 1: rationalising mobility needs (*avoid*)
- Axis 2: encourage modal shift transfers
- Axis 3: improving vehicle performance (*improved*)

- *Axis 1. Rationalising mobility needs (avoid)*

The reduction of GHG from the transport of both goods and persons will be facilitated by reducing travel needs and thus by all practices, infrastructure and technologies that enable it (3.7.1) while ensuring quality of life and equal access to services for all. This reduction in needs will also and necessarily require a reconfiguration of our relationship to space and territories, whether in terms of public space sharing (3.7.3) or the structuring/polarisation of territories (3.7.2).

As regards public space, the systematic implementation of the STOP principle, which places active modes and collective transport as the starting point and centre of reflections and adjustments, is a top priority. Mobility basins (currently being defined) are the first link in a (new) structuring/polarisation of territories, assuming that a territory organised into mobility basins is easier to manage and characterised by shorter distances.

Encourage emerging practices and foster technological innovations that reduce or change displacement needs (PACE measure 3.7.1)

The transport sector is undergoing an important technological and digital revolution, fostering the transition to connected, shared and autonomous mobility. This development should make it possible to move the service chain through the provision of information (route search, timetables and real-time monitoring), facilitating access via payment methods (ticketing), offering new forms of shared mobility, better regulating flows, developing and diversifying intermodal solutions, etc.

Several groups of actions will be implemented to achieve this objective.

Firstly, the aim is to promote innovative public initiatives for collective transport in rural areas. Innovation in public transport is particularly necessary when population densities no longer allow the traditional system to perform well. Mobility on demand is a set of solutions to be developed and coordinated to add the missing link in public transport between sparsely populated areas and the structuring network.

A second work stream is to promote a significant deployment of the use of the shared car. According to shared car operators, each vehicle in their fleet replaces 10 to 15 private vehicles, allowing:

- to free up space, particularly in cities, to enable, for example, a better distribution of space between modes of transport;
- The user must use a vehicle on demand when the car is the most suitable mode of transport.

The aim is to promote:

- The development of operators, by facilitating the clearance of space for this type of vehicle and by supporting the development of supply outside its comfort zone (urban environment) or by enabling young people to practise through the free route via their vehicles.
- Pooling of public vehicle fleets.
- Pilot car sharing operations within or between individuals.

It is also crucial to increase the occupancy rate of vehicles by carpooling. In order to achieve this, carpooling measures must help improve three important factors for workers: time, practical and financial nature. The provision of parking areas is the main lever of the Walloon Region.

It is also important to simplify and make user mobility more comfortable. In order to make a journey, the user is faced with different offers, fares and conditions. The aim is to make the choice simpler by aggregating and presenting the information. **This approach, *Mobility as a service (MAAS)*, must be promoted.**

It is also important to use technology to optimise travel and use of existing infrastructure/services. With this in mind, it is important **to continue the deployment of the ITS (Intelligent Transport System) plan**, in particular with a view to multimodality (smart lights, etc.).

Finally, the region must support innovations in transport, in particular by adapting the framework and legal obligations (autonomous vehicles, etc.). Innovation, research and development in Wallonia with regard to mobility and logistics must be encouraged, both among Walloon private and public stakeholders. For example, through the existing mobility planning tools, it is useful to integrate a management of peak time mobility, in order to spread it over a longer period of time and thus to have less congestion on the one hand and less filled public transport on the other. Such management may involve schools, large public and private employers on a voluntary basis, in consultation with the social partners. This may, for example, result in more flexible arrival times, temporary adaptation of access roads or traffic direction, etc.

464	Promote innovative public initiatives for collective transport in rural areas (mini) -Bus on demand, social taxis, etc., in particular by organising and coordinating the on-demand passenger transport sector	Discounted	SRM
465	Promote the pooling of public fleets' service cars	Discounted	SRM

466	Support the deployment of shared cars, including beyond large cities, in consultation with municipalities to ensure the deployment of the offer at the most suitable locations	Discounted	SRM
468	In consultation with the municipalities, promote parking of shared cars (consider parking free of charge for shared cars or at least dedicate seats to them at a preferential rate)	Discounted	SRM
471	Create car-sharing car parks in Wallonia, located at the crossroads or at the exit of motorways	Ongoing	PRW
474	Develop MaaS (<i>Mobility as a service</i>) orientation in Wallonia with a priority for the integration of public transport offers and interoperability with Brussels	Discounted	SRM
480	Centralise traffic light management on the regional network, adapt control strategies according to conditions and give priority to buses	Ongoing	PRW/ITS plan
765	Integrating the problem of peak hours into mobility tools (ECHP, PICM, mobility basins, PUM, etc.)	New	

Developing the territory for low carbon mobility (PACE measure 3.7.2)

Territorial development has a direct impact on mobility demand and on the volume of traffic. Depending on whether or not public transport accessibility nodes are **located close to** employment and housing hubs, this generates more or less energy-intensive commuting.

In addition to being an environmental challenge (reducing greenhouse gas emissions and combating global warming), it is a **social issue**: the cost of individual transport increases and the purchasing power of many households can be significantly affected by car journeys.

Public transport and territorial development policies need to be articulated in order to **reduce car mobility needs and encourage**⁷⁶:

1. efficient urbanisation near transport nodes;
2. the development of transport to built-up areas in need;
3. joint and coherent strategic development of transport/urbanisation when new transport or development projects are envisaged.

Furthermore, measures to combat land take and urban sprawl are primarily aimed at reducing GHG production resulting from transport by bringing the various places of life closer to each other (home work, domicile/services/shops, etc.) and linking them to public transport networks; on the other hand, they make it possible to preserve areas useful for the development **of natural heritage or green infrastructure**, a vital tool for adapting to the consequences of climate change, including heat islands and floods (see also Chapter 5).

Finally, it is important to **raise awareness among** the various stakeholders of the concept of sustainable

mobility so that they can take this into account in their reflections on the choice of location of residential projects, economic activities or public infrastructure.

485	Update the revision of the Territory Development Plan (SDT) with a view in particular to:	New	

	- Supporting more sustainable modes of transport adapted to territorial specificities and demand potential - Ensuring access to services, community shops and equipment for all in a coherent territorial approach		
486	To reduce mobility needs, ensure that the location choices of public facilities (crèches, schools, sports and cultural infrastructure, public services, etc.), business parks, housing and shops are located in or near urban and rural centres.	Planned	DPR
488	Locate as much as possible the buildings to be built in existing (urban, rural or peri-urban) built-up fabric located in urban and rural centres	New	
30	Encourage cities to set density targets in their communal development plan	Planned	DPR
39	Integrate into the territorial development plan and the (multi-) municipal development plans: (1) criteria for the delimitation of centralities; (2) the criteria for determining measures to guide urbanisation in and outside the centres; (3) the centralities and measures guiding urbanisation within and outside these centres	Planned	CODT
612	Establish annual monitoring of changes in artificial and urban sprawl by delegated officials	Planned	CODT
613	Integrating green infrastructure into the territorial strategy of (multi-) communal development patterns	Planned	CODT
618	Enshrine in the CoDT the objective of ensuring the sustainable and attractive development of the territory while respecting spatial optimisation	Planned	CODT
619	Take into account, in the contextual analysis of regional and communal patterns of territorial development, prospects and needs environmental; notably ecological, from ~~nature conservation and restoration~~	Planned	CODT
491	Define mobility basins related to life basins	Planned	DPR
492	Raising awareness of the concept of sustainable mobility among public and private actors in territorial development so that they can be taken into account in their projects	New	

Optimising urban and leisure areas for low-carbon mobility (PACE measure 3.7.3)

As advocated in the SRM, the challenge is to develop public space and infrastructure with greater implementation of the STOP principle; pedestrians and cyclists should become the priority actors in urban planning mobility in the centre.

493	Develop public space and infrastructure with greater implementation of the STOP principle (pedestrians and cyclists must become the priority players in urban planning mobility in the centres) and set up a monitoring process for this STOP principle so that each development actually takes it into account, particularly at local level. Information and training for municipalities will be deployed to support them in the implementation of this principle.	Ongoing	SRM
495	Encourage the development of an urban planning approach to strategic urban development areas, such as stations' surroundings, with a view to promoting their accessibility by public transport (metros, trams, buses, etc.), by means of suitable arrangements, particularly in terms of safety and fluidity, without new planning tools or additional administrative burdens, for example by extending or specifying exemptions from permits.	New	—
496	To help rebalance the place devoted to the various modes of transport in and around urban centres (promoting multimodal travel and soft mobility) by supporting, in particular, the creation of parking car parks located at the entrance to the most important cities and by helping municipalities to create quiet areas, taking into account the expected positive or negative socio-economic impact on the areas concerned and respecting municipal autonomy.	New	—
610	Encourage the introduction of car-free days by municipalities (guide to good practice, funding of alternatives, etc.)	New	

In addition, **leisure** is one of the most important reasons for providing transport. Measures to ensure the accessibility of sites through active mobility and public transport and to promote the development of local tourism are essential.

119	Developing accessibility of tourist sites through soft mobility and public transport (offer, time, proximity)	New	
118	Developing and encouraging local tourism in Wallonia	New	
94	Facilitate the establishment of an integrated offer of TECs, SNCB and coaches for events involving more than 1500 people.	New	

- *Axis 2. Promoting modal shift transfers*

The FAST vision proposes a complete reversal of the trend observed in recent decades, making a real modal shift necessary to achieve the objectives set (see Chapter 2). It requires the activation of existing and new levers for all means of transport, both people and goods. Multimodality, which is at the heart of the FAST strategy, is also a central perspective in the implementation of the modal shift, in particular through developing vehicles.

Promoting active modes (measure 3.7.4 of PACE)

Active modes (walking and cycling) are the **basic link for multimodal travel**. In addition to their lack of GHG and air pollutant emissions, these modes also have a positive impact on health, and a social dimension due to their low costs.

Three types of action must be carried out in order to achieve significant development: provide sufficient quality infrastructure, raise awareness by making the use of these alternatives socially and support the acquisition of new behaviours.

The main aim of this is to boost quality, dedicated and secure developments. **Raising awareness** requires the construction of a new collective imagination in a universe, or the norm remains a social over-valorisation of the passenger car. The **support** must enable him to build new habits: changing your practice is usually not a question of ‘declic’, but requires learning before becoming a real option.

If walking is to become a real alternative to the car, it is necessary **to implement an ambitious walking Wallonia plan**.

499	Focus on the quality of pedestrian facilities. The design of pedestrian infrastructure must in particular: reply to the criteria from - safety (visibility, legibility, traffic protection, separate arrangements for cycling flows on roads between cities or neighbourhoods, continuity and adapted lighting of routes, priority planning of dangerous crossings); - speed (prioritising pedestrians according to flows, direct routes, no detours, longer green phase for pedestrian crossings and once)	Discounted	Plan Pedestrian

In order for **cycling** to become a real alternative to the car, it is necessary to further develop a bicycle network that meets internationally recognised quality criteria, i.e. a “safe, coherent, fast, comfortable and pleasant” network. PACE will build on and strengthen the Wallonia Cyclable Plan (WACY), the Cyclable Decree and the legal obligation to route cyclo

pedestrian on all roads useful for cycling and/or pedestrian via the Decree of 4 April 2019 aimed at generalising quality cycling facilities in Wallonia and enhancing the safety of cyclists.

PACE thus takes over and reinforces all the measures of the Wallonia cycling plan according to its four themes:

504	Ensuring the governance of cycling policy: Setting up and monitoring the cycling strategy, training of citizens and networking of stakeholders, ensuring the development of legislation.	Ongoing	WACY Plan
506	Securing the network and parking: Define utility and recreational cycling networks, improve the quality of cycling and parking infrastructure, put in place financial tools for the necessary investments, make it compulsory to build secure bicycle parking for all new residential or office buildings	Discounted	WACY Plan
507	Offering services: Support a sufficient offer for the repair and rental of bicycles. The services thus supported must not, however, hinder the development of the economic sector. Develop the use of bike subsidies, saddle training and the fight against theft Encourage the transport of goods by bike.	Ongoing	WACY Plan
508	Communicating and raising awareness: develop and offer reference documentation, information and user engagement tools. Organise dissemination through events and information points	Ongoing	WACY Plan

To speed up support for **active mobility and intermodality** policies in municipalities, a specific drawing right (Investment Plan for Active Mobility and Intermodality) will be introduced. This drawing right will make it possible to carry out cycling, pedestrians and facilities to promote intermodality through mobile areas. An initial allocation of EUR 52 million was committed in 2021 by the Government. This envelope will be increased to EUR 210 million for the 2022-2024 programming period. As part of the governance of the PACE described in Chapter 6, these actions will be assessed and potentially perpetuated, reinforced or modified as GHG evolves by 2030.

Improve and expand public transport (PACE measure 3.7.5)

A significant increase in the modal share of public transport must of course be based on a gradual redefinition **of the provision of collective transport** and the deployment of new infrastructure and rolling stock to improve the quality of service.

In order to ensure this development, the Walloon Government has:

- set up the Transport Organising Authority (AOT) and entrusted it with the organisation, regulation and supervision of public passenger transport operating systems;
- merged the TECs and the SRWT into a single entity, the Walloon Transport Operator (OTW), entrusting it with the task of internal operator for the operation of regular services;
- set up the Mobility Basin Consultation Bodies (OCBM), which include the active contribution of

road/mobility managers in the broad sense, and are responsible for issuing recommendations on the evolution of public transport supply at local level and for reflecting on mobility issues on a multi-community scale.

The aim is to ensure **optimum accessibility** within the clusters, from municipalities to the Walloon clusters and outside the territory and to the main places of education, jobs and services.

The spirit proposed in the SRM is to have:

- on the one hand in agglomerations, a competitive public transport offer in terms of frequency, journey times and quality of service;
- On the other hand, in each municipality where this is necessary, at least, a vehicle where citizens can have a structural offer. To join this vehicle, beyond soft mobility infrastructure or a reduction of private vehicles, local public transport or on-demand transport would be deployed.

To this end, a **structural offer made** up of fast lines serving each municipality in Wallonia will continue to be developed and made more readable as a matter of priority. Where it exists, the rail network will be the preferred means of connecting the hubs, but where rail connections are not established, the offer of collective bus/coach transport will be developed to complement the structuring network. With regard to the regional aspects of the implementation of SNCB's and Infrabel's investment plans, in view of the structural nature of the railway network for the territory, Wallonia will not accept, as a result, the possible abolition of lines or stations.

In clusters, reference **service levels** (minimum frequencies) will be gradually introduced. In parallel with frequency, particular attention will be paid to quality of service through three main areas: **reliability of service, speed and comfort**.

The attractiveness of public transport also requires financial incentives. It is therefore planned to make the **TEC free of charge** for those aged 18-24, 65 and + and the beneficiaries of the increased assistance.

Finally, the development of accessibility throughout the territory will be based on a hierarchical network starting from connection points on the structuring network (**mobile hubs**). These will be physical places where different mobility offers and infrastructure converge and where users will be able to access quality and efficient services. The actions to be taken in this area are grouped into three axes.

- Investing massively in public transport, increasing and restructuring supply to make it more attractive
- Supporting the rail network as the backbone of public collective transport. The aim is not only to defend the Region's interests in rail decisions but also to act by placing, where relevant, at the heart of the public transport and active mobility network.
- Developing the connection points on the structuring network (mobilities) and in urban agglomerations (mobipoints), in order to facilitate intermodality for users and thus extend the area of relevance of public transport and active mobility.

513	Defining and prioritising a structural offer made up of fast lines serving each municipality in Wallonia where relevance is assessed and verified with a view to: - a shift per hour and direction from 6 a.m. to 20 p.m. every day; - in the poles, a reference service level between 4 and 8 buses per hour and per direction in city hearts and between 2 and 4 buses on the periphery from 6 to 24 from Monday to Saturday Special attention will also be paid to the provision of TEC to areas of economic activity.	Discounted	SRM
515	In parallel to the frequency, increase the quality of service through three main axes: reliability of service, speed and comfort	Ongoing	SRM
516	Finalise ongoing infrastructure deployments in major cities, in line with the proposals of the Urban Mobility Plans (PUM) where they exist; implement a high-level service bus in the Mons-Bordeaux region; extend the Liège tram to Seraing and Herstal; extend the Charleroi light metro to the Grand Hospital; finalise the deployment of the Charleroi BHNS; finalise the Namur railway station and reinforce the facilities for the buses in consultation with the City of Namur	Planned	AOT/PRW
517	Make the TEC free of charge for those aged 18-24, 65 and + and the beneficiaries of the increased assistance; and further improve the accessibility and attractiveness of public transport.	Planned	AOT/PRW
518	Introduce integrated charging for the use of public transport solutions. As a second step and in consultation with stakeholders, analyse the possibility of extending it to private offers (taxis, shared cars, micromobility, etc.).	Planned	SRM
519	Prioritising bus connections to stations, in particular from the network of structural public transport lines; and promote the accessibility of stations as a 'mobile', a place of exchange and life	Ongoing	SRM

520	Promote preparation this is offer integrated (not marketing only) covering routes, service levels, fares, timetables, connections, etc.	Ongoing	SRM
522	Determine a basic territorial grid based on the potential offered by structural collective transport links, and define levels of requirements in terms of available space, equipment and functions to be accommodated, accessibility via secure cycle/pedestrian routes and own priority systems/sites for collective transport, etc.	Planned	SRM/PRW
524	Deploy, under the supervision of the Region and on the basis of specific locations identified in consultation with the stakeholders (local authorities, road managers, mobility operators), a meshed network of mobile hubs.	Ongoing	SRM/PRW
525	Initiate the process of implementing the mobility schemes through the right to sustainable mobility for municipalities	Planned	SRM/PRW
526	Formalise/contract the operation and maintenance of the mobilities/mobipoints by a regional body, a mobility operator, a municipal administration or a private operator	Planned	SRM/PRW

Change parking rules (PACE measure 3.7.6)

Parking is of crucial importance in the structuring of a mobility policy⁷⁷. It is even one of the only ways of achieving a **significant modal shift through supply regulation and reorganisation**. Reducing parking space, particularly in urban areas or space, is a prerequisite for a rebalancing of public space via pedestrians, cycle paths, clean bus sites, green spaces, to the benefit of all its users.

The current benchmark is still too often characterised by the belief that its car accessibility determines the vitality of a city, with the opposite result that parking offers are steadily increasing. Although the competence is essentially municipal, the area **of intervention of the Region**, whether at an indicative or regulatory level, is not negligible.

528	Repeal, with immediate effect, the ministerial circular of 17 June 1970 (the so-called Saeger circular) and define a new indication within the meaning of Article D.III.2 (1) and (8) of the CODT, via the Regional Urban Planning Guide (GRU), which will serve as a basis for issuing planning permits, in order, on the one hand, to limit the number from new locations from car parking during the construction/renovation of residential and	new	—

	secure bike locations, taking into account the accessibility of intermodal hubs, the quality of public transport services and the reality of services working during breaks or timetables; and to encourage the construction of permeable parking coatings (Article D.III.2 (1) and ⁽¹³⁾ of the CODT).		
530	Encourage cities and municipalities to set up a MCP (Common Mobility Plans), a PUM (Mobility Plans) or an Intercommunal Mobility Plans (PICM), including a parking plan to implement regional objectives (attractiveness of the modal choice of private car, rebalancing of public space, etc.) and ensuring that investments are consistent with all these plans.	new	—

Widening and increasing the mileage charge for heavy goods vehicles (PKPL) and encouraging the modal shift of freight transport (PACE measure 3.7.7)

The mileage charge (or PKPL system) currently applied to **lorries in Wallonia on the structuring network** makes it possible to meet three types of objective in accordance with the European directives governing it:

- Imputer part of the infrastructure costs.
- Encourage the greening of the vehicle fleet taking into account EURO standards.
- Encourage modal shift.

In its DPR, the Government provided for ‘**an analysis of the possibility of extending**, in specific situations, the road network subject to the mileage levy for heavy goods vehicles to roads connected with the already priced network, in order to respond to the difficulties created by the inappropriate transfer of traffic to other roads’. In accordance with this DPR, SOFICO carried out a study with the Stratec office in order to study several adaptations of the system in Wallonia.

In the long term, several developments in the mechanism could be envisaged.

On the one hand, it would be necessary to consider **modularisations of the tariff** according to different parameters (congestion, time slots, precise sections, etc.) and to adjust the amounts on that basis, while taking account of the existing charges in the other regions (Flanders, Brussels) and countries (Switzerland, France, etc.), with a view to achieving a significant impact on modal shift.

On the other hand, it would be necessary to modulate the charge **according to the energy performance** of vehicles, with the introduction of a ‘zero emissions’ class.

533	Develop the mileage charge mechanism (PKPL) from 2025 onwards, starting from the review of the recommendations of the SOFICO/Stratec study Such a development could include:	New	—

	a) the modularisation of the tariff according to different types of tariff parameters (congestion, time slots, precise sections, etc.); b) the modularisation of the fee according to the energy performance of vehicles;		

Beyond the PKPL, further action is being taken to encourage modal shift in freight transport. Freight transport is still largely carried out by road and accounts for a significant part of the sector's emissions. With the increase in e-commerce and home deliveries, especially since the Covid pandemic, the parcel transport sector, including by vans, and associated emissions increased significantly.

The goods component of the SRM, adopted in 2020, sets out the strategic orientations and measures to be taken to reduce emissions from freight transport, including through modal shift. All these measures will contribute to the objective of PACE. This includes the recent and promising pilot actions to speed up this process, which will be the subject of particular follow-up under this plan.

766	Implement the goods component of the SRM and in particular the following measures: • Analysis of transport by sector • Data development and referencing "mobility" and validation of the cost of transport externalities • Optimisation from channels from displacement multimodal in the territory	Planned	SRM/PRW

Strengthening roadside inspections (PACE measure 3.7.8)

The introduction of healthy competition between modes and a rebalancing towards alternative modes of road transport requires a more repressive policy in terms of **road safety**. The inspection must concern weight, size, roadworthiness, compliance with social legislation or driving under influence. The aim is to be able to carry out 50 000 checks per year (i.e. 2.7 billion km travelled per year, or one check every 50 000 km).

534	Develop additional dynamic weighing stations for heavy goods vehicles and vans aimed at tackling excessive vehicle overload	Ongoing	PRW/ITS

Reducing GHG emissions from Walloon airports (PACE measure 3.7.9)

The entire air transport sector per passenger has been severely affected by the **health crisis**. The figures observed for Charleroi airports and to a lesser extent Liège show that Wallonia has not been spared in this respect, while freight transport has not decreased and even increased.

Air transport will evolve in a way that will have to reconcile the development of the sector **with the integration of environmental, political, social and economic imperatives**. In view of Wallonia's climate and economic and social ambitions, these findings must lead us to ask ourselves about the possible future

of the aviation sector in our region.

For example, the Government will focus on the introduction of **kerosene taxation at European level**, the relaunch **of night trains** and the development, more generally, of the European rail network. It will also defend, internationally and in particular at European level, the principle of a significant reduction in greenhouse gas emissions from aviation. Aviation emissions in the European Union are accounted for at European level (ETS). Since 2012, airlines flying to or from Europe – and thus not only European airlines – have to participate in the European emissions trading scheme.

As part of the Green Deal for Europe, the European Commission has proposed **phasing out free emission allowances** for aviation, further reducing emissions from the sector and ensuring a minimum share of renewable fuels to be made available at EU airports. It also proposed to align with the Global Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) for international flights. The scheme aims at stabilising aviation CO2 emissions at the 2019 level by obliging aviation operators to cover the growth of their emissions after 2019 with offsets in order to reach carbon neutrality in 2050.

The Walloon Government will also call at European level for limiting the use of **private jets**, with the exception of jets used for medical purposes.

At regional level, the Government undertook, in its DPR, to support the two management companies (Brussels South Charleroi Airport and Liège Airport) in their desire to make the **two Walloon airports zero-carbon airports** at the level of infrastructure by 2030. On the basis of the information provided by operators and the administration, the Government will regularly monitor developments in infrastructure-related emissions. For flights, it will also ensure emission reductions taking into account decisions adopted by the relevant international bodies.

With a view to achieving the objectives of carbon neutrality in the airport sectors in Wallonia, SOWAER is responsible for drawing up an ambitious roadmap for reducing GHG emissions from the sector, taking into account the levers at its disposal. The SOWAER Strategic Committee is responsible for launching this project. SOWAER plays a coordinating role in this context among the various actors. It will submit an annual report on the matter to the Government.

719	As regards the development of Walloon airports: • For flights, reduce emissions by holding takes account of decisions taken by the relevant international bodies; • For infrastructure, the government support the two management companies (BSCA and Liège-Airport) in their desire to make the two Walloon airports zero-carbon airports by 2030.	New	

• *Axis 3. Improving vehicle performance (improved)*

Improving vehicle performance alone will not achieve our environmental objectives, but it is an important part of the strategy as a whole. **Greening the vehicle fleet** is essential to reduce emissions from the transport sector. The process is started, but is too slow; it needs to be scaled up and accelerated in order to fit into the ambitious timetable.

Increase the supply of public charging points for electric vehicles (PACE measure 3.7.10)

Today, the need for **charging stations in the public domain** primarily involves a x-ray of the existing one to

support future deployments in the right places. In order to carry out this mapping, collaboration between the territorial development agencies, the distribution network managers and the local authorities has been set up and will make it possible to identify areas in which there are shortages of public terminals in order to increase the number of points available. It will also allow municipalities that so wish to have support for the implementation of future terminals. New support schemes are due to be developed in 2022; they are expected to allow the deployment of 1000 terminals in 2023 and 1000 terminals in 2024.

Furthermore, and thanks to the Recovery Plan, the target of 6.900 public recharging points by 2030 initially set out in the NECP (in 2019) has been brought forward by several years (2026).

However, the current targets for public terminals are largely insufficient given the composition of the ambitious fleet and the upcoming AFIR standards that would set a binding target of around 500.000 kW, which, translated into charging points, would correspond to just under 25.000 semi-fast recharging points (22 kW) in Wallonia.

In addition to the implementation of Directive 2014/94/EU (currently being revised in the form of a Regulation) on the development of alternative fuels infrastructure, a strategy for cross-charging locations, type and load frequency will be developed around several actions to develop: fast charging points on the structuring network, public charging stations, unrestricted accessible charging stations and private charging points.

The terminal development capacity will be articulated with **the optimisation of the electricity grid** (see section 3.3).

535	Revise the concession contracts for type I and II motorway areas (those equipped with service stations and licensed to oil tankers)	Planned	AFIR/PRW
536	Define a programme of support or incentives or public-private partnerships for the development of the recharging offer	Planned	AFIR/PRW
537	Equip the car parks for heavy goods vehicles under the supervision of the Walloon Commission for motorway equipment (CWEA)	Planned	AFIR/PRW
538	Support future deployments in the right places (collaboration between TADs, network operators and local authorities)	Planned	AFIR/PRW
540	Increase tax incentives for companies installing publicly accessible charging stations	Planned	AFIR/PRW
543	Introduce from new standards/equipment minimum within the new buildings/renovations	Planned	AFIR/PRW/EPBD

Introduce dynamic speed management (PACE measure 3.7.11)

In agglomerations, the creation of **quiet areas** in urban centres (zones 30, pedestrian zones, meeting areas, etc.) improves the safety of all users and promotes active mobility, as well as reducing noise pollution and improving air quality. The same objectives are pursued by **reducing speed from 90 km/h to 70 km/h** on other roads, depending on the reality of the building and the safety of all users. In close consultation with the municipalities, the Walloon Region therefore undertakes to use its powers to promote speed reduction

from 90 km/h to 70 km/h on rural roads and to support the municipalities in developments conducive to a balanced sharing of space in their territories.

Furthermore, according to Vias (formerly the Belgian Road Safety Institute), ‘The average speeds and variations in vehicle speed are two factors likely to influence fuel consumption and, as a result, greenhouse gas and particulate pollutant emissions.’⁷⁸ A **flow management support system on the structural axes** with dynamic speed management allowing localised, temporary and progressive speed variations will therefore be put in place. The introduction of the scheme will make it possible to achieve the objectives of improving mobility, traffic flow and air quality, and reducing the number of accidents and GHG emissions.

In addition, **eco-driving** (which includes driving with the highest gear and the lowest number of towers possible, anticipating to avoid speeding up or slowing down the engine, switching off the engine at major stops, etc.) allows for a reduction in individual fuel consumption and thus a reduction in GHG emissions. Its practice will therefore be promoted through information campaigns and training for as many people as possible.

Finally, the International Energy Agency in its report ‘Net Zero by 2050 A Roadmap for the Global Energy Sector’⁷⁹ included **speed reduction** in behavioural measures to achieve net zero emissions in 2050. Speed reduction campaigns will be continued and strengthened.

552	As early as 2025, in close consultation with the municipalities, the deployment of quiet areas in agglomerations and in particular zones 30, and promoting a speed reduction from 90 km/h to 70 km/h on other roads, depending on the reality of the building and the safety of all users.	new	—
553	Set up a flow management support system on the structural axes with dynamic speed management	Discounted	PRW
	allowing localised, temporary and progressive speed variations. The introduction of the scheme will make it possible to achieve the objectives of improving mobility, traffic flow and air quality, and reducing the number of accidents and GHG emissions. The pilot phases will be implemented as part of the Recovery Plan.		
732	Promoting eco-driving and speed reduction campaigns: continue and strengthen awareness campaigns and training.	New	

Study possible developments in the taxation of vehicles that are fair and incentivising the purchase of less polluting vehicles (PACE measure 3.7.12)

Taxation is a powerful tool to steer the purchase of less polluting vehicles, provided that it takes into account several factors in a certain degree of proportionality: **mass and power of the vehicle, GHG and air pollutant emissions**. It is therefore necessary for the Walloon Region to study possible developments in long-term car taxation in order to ensure that it is fair and incentivising the purchase of less polluting vehicles over the long term.

With this in mind, the Walloon Region is committed to closely monitoring developments in the European

framework and potential changes in the tax systems in Flanders and Brussels. The aim is to take account of **changes** in modal shares in relation to the objectives set by the FAST strategy set out in Chapter 2 of this plan, in order to continue to reflect on the long-term development of car taxation.

554	Study possible developments in long-term car taxation in order to ensure that it is fair and incentivising the purchase of less polluting vehicles over the long term	New	

Exit from thermal vehicles (PACE measure 3.7.13)

As a reminder, at European level, in 2019, the average emissions of new cars were 122,3 gCO₂ per km. In Wallonia, the average CO₂ in the park was 131.5 g/km and 121.4 g/km for new registrations (Ecoscore). In October 2022, the European Commission proposed a ban on the sale of new thermal vehicles from 2035, sending an important signal on the gradual exit of thermal vehicles. The Parliament validated this agreement but not the Council of the EU. There is currently no European consensus on the subject.

Wallonia has established a timetable for phasing out thermal vehicles circulating on its territory by means of Article 2 of the Decree of 17 January 2019 on combating air pollution linked to the use of vehicles. This timetable may be adjusted according to the accompanying social and economic measures adopted in parallel. For the years beyond 2030, this timetable may also be adapted in the light of European decisions taken in this area.

Should measures emanating from other federated entities or from the federal in their respective contributions to the NECP contradict the above measures, Wallonia reiterates its commitment to respect the European sales ban calendar and its timetable for circulation as set out in this section.

In general, this measure is a credible way to accelerate the renewal of the vehicle fleet. Supporting the transition to zero-emission vehicles will reduce greenhouse gas emissions, reduce pollutant emissions and help reduce noise pollution. At this stage, the timetable concerns only vehicles of category M1, i.e. cars, and will be extended until 2050 as follows, compared to the timetable already laid down in the Traffic Decree:

Year from 1 January	M1 Vehicles Test	M1 Diesel vehicles
2025	Without Euronorm, Euro 1, 2, and 3	Without Euronorm, Euro 1, 2, and 3
2026	Euronorm 4	Euronorm 4
2028		Euronorm 5
2030		Euronorm 6 (except Euro 6d or more)
2035	Euronorm 5	Euro 6d-TEMP
2043	Euronorm 6	Euro 6d
2050	Euro 6d-TEMP, Euro 6d	

Particular attention will be paid to the situation of workers and cross-border flows in order to avoid unintended effects.

Furthermore, for N1 vehicles, i.e. light commercial vehicles (vans), a phase-out schedule will be established after consultation by July 2023, in line with European guidelines, and possibly modulated according to geographical areas. Indeed, the average age of LCVs in Wallonia is increasing (the proportion of vehicles aged 11 and over has increased considerably and its number doubled in less than 10 years) and LCV emissions have almost tripled since 1990. It is therefore important to encourage the greening of the vehicle fleet and to reverse the trajectory of LCV emissions.

565	Adjust the driving ban laid down in the Traffic Decree on 1 ^{January} 2025 for M1 vehicles without Euro, Euro 1, 2 and 3, Euro 4 Diesel and Euro 6 Diesel standards according to the accompanying social and economic measures adopted in parallel.	Discounted	Circulation Decree/ZBE
	Extend the timetable for the exit of M1 thermal vehicles beyond 2030, taking into account relevant European decisions. Vehicles of less than 3.000 km and vehicles corresponding to the definition of ancestors, and motor caravans will be excluded from the devices. In line with the European guidelines, establish a phase-out schedule (by July 2023, after consultation), possibly modulated according to geographical areas, for N1 light commercial vehicles. Motorcycles are excluded at this stage.		

Brussels Capital Region

The Government also undertakes, within the framework of its PACE, to:

Active and multimodal mobility via the Goodmove plan

- Implement the Goodmove plan;
- Provide the necessary budgetary and human resources to ensure continuity of implementation implementing measures contained in the Goodmove plan;
- Participatory governance with municipalities, Brussels citizens and businesses in the implementation of the good move plan;
- Implement a smart mileage pricing system for light-duty vehicles on the territory of the Brussels Region;
- Accompany this reform with necessary accompanying measures at the social level
- with specific attention to the gender dimension and the digital – and economic divide, in order to ensure a just transition of the actors to whom it applies;
- Amplify the work of the PRDD (Regional Sustainable Development Plan) to make operational, in the long term, the city of short distances and including the air-climat-energy dimension;
- Through Projecting.brussels, an inventory of the existing works will be carried out by 2025.

follow-up to the establishment of a methodology to continue and complement the work started;

- Brussels Environment and Brussels Mobility will also set up a Green Deal car sharing with many regional actors (companies, public authorities, associations, etc.) aimed at implementing concrete short-term actions to ensure that vehicle sharing is a realistic alternative to individual car ownership and use;
- Study, in collaboration with Brussels Environment and Brussels Taxation, the possibility use criteria such as mass and power in the various relevant tax, environmental and mobility policies, taking into account guidance taken in other entities;
- Continue to implement actions D3 and D4 of the Goodmove plan with the support of Brussels mobility;
- Gradually changing the obligations relating to the exemplary nature of transport of public authorities in Brussels;
- Prohibit advertising in public spaces or on media belonging to powers public for vehicles not adapted to travel in an urban environment and will explore how this is done;
- Encouraging car sharing, including through regional taxation;
- The Shifting Economy Strategy includes a focus on logistics at stake: implementation of a smart logistics ecosystem enabling the development of local production and access to resources. This must be done by ensuring the sustainable transport and storage of goods in the urban fabric without increasing traffic congestion in Brussels. To achieve this, 11 actions are planned under this axis, such as support for the development of in-house logistics plans (LOG 8), optimisation and valorisation of low-nuisance means of transport (LOG 5), etc.;
- The Cairgo bike project, launched at the end of 2020 and funded by Europe and coordinated by Brussels Mobility aimed at converting and assisting individuals and professionals in the regular use of the cargo bike, for the transport of goods and persons;
- A study for Brussels Mobility on the project for the labelling system for the sector of urban distribution (measure E6 of the Goodmove plan) identified the FORS label (fleet accreditation system applied in London) as the most appropriate solution;
- Brussels Mobility launched in 2022 a “logistics facilitator” project aimed at organising training, awareness-raising and advice missions for construction companies on logistics and road safety issues in the BCR. Particular attention is paid to smaller businesses with fewer resources to train and optimise their practices;
- The BeCircular 2022 call for projects includes a mobility component which specifically refers to the urban logistics. In the same vein, in a previous edition of the same call for projects, the CityDepot centre (BeCircular winner in 2016) has become an example of smart urban logistics in Brussels, which reduces the impact of “last mile logistics” (last step of the distribution chain, when goods move from wholesale to final delivery, usually the most expensive and heavier on the environmental side). Thanks to optimisation of volumes and rounds of deliveries, as well as carpooling of goods and the use of less polluting vehicles, CO2 emissions are significantly reduced;
- The Brussels Construction Consolidation Center, the purpose of which is to make available the Brussels construction sites are a logistical platform for consolidating supplies of materials. To achieve this, this project intends to test the operation of a building consolidation centre, but also its digital solution, while measuring the societal impacts (mobility, economic, environmental and social) and the impact on the performance of the site supply chain;
- Realising a Brussels vision of decarbonised logistics as a pillar of the transition economic enshrined in the SRTE (Regional Strategy for the Transition of the Economy);
- In line with SRTE, adapt the management contract for the Port of Brussels to develop

a strong focus on local production and decarbonised urban logistics, and progressively impose a plan to decarbonise vehicle fleets on companies linked to it through the concession contract;

- Propose, by 2024, a sustainable development vision with a business plan for the TIR Centre which supports the region's vision of urban logistics and circularity. A funding model will be developed to enable the implementation of this vision;

- Develop multimodal hub on the Schaarbeek Formation site. This development will: the subject of an in-depth study carried out jointly by the Port of Brussels and Citydev.

The deepening of solutions must be based on a series of invariants, such as the presence of the railway infrastructure and its exact location on the site;

- An urban "platform" concept on the Schaarbeek training site offers the most relevance, as the Port of Brussels already has the basic infrastructure of a "classic" intermodal platform (rail-road) linked to its container terminal. An urban logistics hub will have to respond to emerging needs and trends linked to the different scales of logistics functions (containers, bulk containers, swap bodies, pallets, parcels);

- Raise awareness among all regional stakeholders of the environmental impact of urban logistics, by a particular last mile, and if necessary to reduce it;

- Require public authorities to play an exemplary role at this level;

- Launch calls for projects to implement the logistical part of the objectives of the roadmap "low emission mobility";

- Put in place from April 2023 a green low-emission logistics deal from the Region and launch a call on all organisations involved in the transport of goods in Brussels to join it;

- Supporting urban logistics actors and accelerating the transition to logistics low emissions urban by setting up and gradually strengthening a facilitator service on the basis of the experience launched in 2022;

- Implement the FORS Label project to promote virtuous practices in the field of urban distribution: define the modalities for the implementation of a label and the incentives for obtaining it; set up specific training courses; use as a criterion for granting access in restricted traffic areas; include criteria for the selection of qualified providers in private and public procurement (see measure E6 of the Goodmove plan);

- Promote alternatives to road transport for the "last mile" by supporting new transport solutions, by perpetuating financial support for the cargo bike, and by developing one or more cycle logistics hubs and an operating or digitisation subsidy for users (see Study 2030-Q4);

- Intensify cooperation with the other two regions and the federal, in particular in the framework of: the establishment of the label project;

- On 6 July 2022, the Brussels Parliament adopted a new parking order. it further anchors Goodmove's objectives in the regulation of parking, such as the desire to shift parking from the road to off-road parking, in order to free up space and increase the quality of life of the Brussels population. The new order will subsequently be accompanied by a revision of the Regional Plan for Stationary Policy (PRPS) and decrees which will further specify the regional rules on parking, to be broken down at municipal level;

- Strengthen COBRACE provisions related to parking in buildings of offices, taking into account the specification of neighbourhoods and the principles of the Goodmove plan and on the basis of the conclusions of the legal study on this subject;

- Review the criteria for the number of places per dwelling in the revision of the RRU;

- Strengthening the role of the riparian map as an instrument for the mobility transition;

- In the framework of the NECP, the Goodmove Plan (Action D5), and its policy statement

in general, the government had already decided to phase out thermal vehicles. This commitment took the form of the Government's decision to include in the legislation relating to the low emission zone the ban on the use of diesel vehicles in 2030, followed by petrol, LPG and CNG vehicles in 2035;

- For companies and public authorities, those employing more than 100 workers on the same site in the RBC are subject to the obligation to introduce a business travel plan, consisting of a diagnosis and an action plan every three years. This instrument has proved its worth and progress in terms of mobility or decarbonisation of transport is real;

Accelerating the transition to vehicles without direct emissions

- The Government has already put in place certain accompanying measures for various audiences affected by the LEZ, in the form of financial support or by encouraging tests of alternatives to the car:
 - The Brussels Air bonus has been strengthened: its budget has been quadrupled and it now offers a card offer to those who decide to separate themselves from their vehicles, while allowing them to test new mobility alternatives. The amount of the bonus varies according to household income.
 - Mobility Coach offers free and personalised online sessions. collective or individual mobility, as well as mobility visited to identify the best mobility options according to needs, and test alternatives to the car.
 - The LEZ bonus for self-employed, micro, small and medium-sized enterprises they must replace their commercial vehicle which no longer meets the access criteria of the Lower Emissions Zone. This bonus is currently being revised in order to take better account of the reality of Brussels professionals.
- In order to guide government mobility measures, the NECP provided for: the establishment of a strategic LEZ committee. This committee was included in the Climate Expert Committee set up in the Climate Order and presented in the context chapter (see 1.3 – Regional climate governance), which was supplemented by expertise on air quality and mobility.
- The adoption of the Low Emission Zone Calendar for the period 2025-2035 and of the roadmap 'Low Emission Mobility' specifying the framework for the exit of the thermal vehicles concerned;
- Implement the Low Emission Mobility roadmap with resources necessary, with a focus on the gender dimension;
- Take account of developments in scientific knowledge and market opportunities on decarbonised alternative fuels, including green hydrogen;
- Amplify LEZ control by completing the Automatic Number (ANPR) camera network Plate Recognition) and setting up mobile inspection teams as of 2022 to check compliance of foreign vehicles travelling in Brussels with the criteria set by the low emission zone;
- Study and, where appropriate, adopt a system of penalties linked to the existence and effectiveness of the implementation of a business displacement plan to reduce emissions;
- Explore the possibility of extending the fine particle counter test during testing periodic technical equipment for trucks, buses and petrol vehicles;
- Study and, where appropriate, adopt a system of penalties linked to the existence and effectiveness of the implementation of a business displacement plan to reduce emissions;
- The 'Electrify.brussels' plan (approved by the Government on 01/12/2022) sets out the plan of deployment of charging stations and identifying the charging infrastructure needs of the various users throughout the region;

- Strengthen the development of charging station facilities and promote their installation in petrol stations;
- Strengthen or introduce obligations for the installation of charging equipment for residents, workers or visitors) in private or public car parks, new buildings or buildings undergoing major renovation;
- The Government has adopted its vision on the deployment of charging infrastructure for electric vehicles;
- In 2022, via the Chargyclick project, the Region doubled the number of terminals installed on roads. by installing almost 250 new charging stations throughout its territory, of which some thirty are dedicated to car sharing. For the year 2023, Chargyclick will further increase the rate by installing 600 terminals (including about thirty for car sharing), thus making it possible to achieve the target of a terminal of less than 150 m from each Brussels household;
- New car parks must be equipped with at least one recharging point for the electric vehicles. The new car parks must provide the necessary ducts for the passage of electrical wiring in order to allow the future installation of a recharging point for each parking space;
- Grid connection can be made to the grid, but also, if it is the best one technical and economic option, to a private network. This option will soon be made possible via the e-mobility ordinance to facilitate the operation of parking spaces for electric charging;
- Public authorities in Brussels, whether regional or local (municipalities, CPAS and intercommunales), may purchase or lease only vehicles (cars and multi-purpose vehicles – MPV) without direct emissions from 1 January 2025;
- To facilitate the task of public authorities, specific support has been put in place.
- The Fleet & Mobility Facilitator; The Bruxelles Environnement Market Centre for the operational leasing of electric vehicles; The ‘MobiClick’ market centre;
- Continue the deployment of the Brussels network of charging points for vehicles electrical, following the principles included in the deployment plan “Electrify.brussels”;
- In the context of service concession procedures relating to ownership publicly accessible recharging points on roads (organised by Sibelga pursuant to Article 24a (1) (14) of the Electricity Ordinance), include in the tender specifications requirements relating to the arrangements for presenting the price (transparency, display, etc.) of the recharging service offered at those recharging points which ensure that the conditions necessary for the comparison of prices by the user are met;
- Following the testing of fuel cell vehicles in the captive fleets of the STIB (Société des transports intercommunaux de Bruxelles) and Bruxelles Propreté (Société des transports intercommunaux de Bruxelles) and Bruxelles Propreté, carry out a comprehensive assessment of the experience from an operational point of view, but also from the point of view of reducing overall CO2 emissions and emissions of direct pollutants, as well as energy sobriety, and taking this into account in the choices made in the next STIB and Bruxelles Propreté management contract;
- Include, unless otherwise specified, from 2023 as a criterion for any new purchase of any vehicle (excluding metro, trams and buses) by all public authorities the equipment of a sustainable air conditioning system powered by gases with lower global warming potential;
- Gradually amend them in order to incorporate technical and economic constraints; air conditioning systems for existing public vehicles, moving them towards sustainable air conditioning systems powered by gases with lower global warming potential;
- Assess the feasibility and impact of these two measures for STIB trams and buses, with a particular attention to the school transport sector.

Circular economy and waste

These policies aim to move away from our current linear economic system, where raw materials are transformed into products, which are destroyed at the end of their useful life. We are therefore committed to maximising the reuse of products and raw materials and minimising the loss of value. In a circular economy, many strategies are used to keep materials and products in the economy as high as possible. They are repaired, have a high second-hand value, are scalable, can be easily dismantled and transformed into new products. The selected materials are recycled or bio-based in the initial phase, and recyclable or degradable at the end of their life.

This requires a thorough rethinking of the products and systems in which they are used: reuse, dismantling for repair and replacement, introduction of product-service combinations, support for other consumption models based on shared use, etc.

The policies implemented by the various governments to reduce the amount of waste and optimise its treatment are based on environmental taxes (promotion of reusable packaging), stricter regulations (prohibition of landfilling of organic waste, recovery and energy recovery of biogas in solid waste disposal, production of electricity in waste incinerators) and the development of specific pathways for better recovery and treatment of waste.

Through the intra-circular economy platform, levers such as product standardisation, eco-design, new business models, financing, taxation and indicators are aligned and legal barriers are analysed, for example in terms of lifespan, reuse, recyclability and recycled content. Joint initiatives can also be developed on the planned wear and ageing of products and the development of regulations on this subject. In addition, regional and federal regulations, financial incentives and product standards will be aligned as much as possible to make recyclable and reusable packaging more attractive. Finally, better cooperation will be put in place to improve the durability of digital equipment, for example by introducing longer warranty periods and providing uniform information on the durability of equipment (e.g. ecological footprint, lifetime, reparability).

Federal State

Federal Circular Economy Action Plan

- Existing objective

The Federal Circular Economy Action Plan 2021-2024 includes 31 measures to enable raw materials to circulate as long as possible in the economy. The aim is to reduce the impact on the environment, preserve biodiversity and support competitiveness by reducing our dependence on imported raw materials.

Flagship measure (description)

Implementation of the Federal Circular Economy Roadmap 223

Other measures

- Operationalisation (implementation)

The Federal Circular Economy Action Plan (FACE) was approved on 21/12/2021 and will be completed in September 2022. The 31 measures included will be implemented, in addition to two calls for projects in the framework of *Belgium Builds Back Circular*, focusing on eco-design and chemical substitution, but also through projects such as the improvement of the EC intra Belgian platform, information and awareness

General policy223 statement of the Minister for Climate, Environment, Sustainable Development and Green Deal, Zakia Khattabi, to the House of Representatives on 3 November 2020.

raising for SMEs.

The plan has six objectives, each with a series of measures:

1. Encouraging the marketing of circular products and services
 - Measure 1: Update product standards to facilitate recycling
 - Measure 2: Application of a recoverability index
 - Measure 3: Provision of software compatibility information
 - Measure 4: Certification of the proportion of recycled materials
 - Measure 5: Development of a REACH strategic policy for the substitution of chemicals of concern
 - Measurement 6 Ban on disposable products and promotion of reusable alternatives
 - Measurement 7 Legal framework for the development of new circular services
 - Measurement 8 Development of a guide on the PaaS methodology for businesses
 - Measurement 9 Testing dual pricing of energy-intensive products
2. Promoting greater circularity in production methods
 - Measure 10: Support and promotion of circular business models and creation of a framework for certification of sustainability and circularity of services
 - Measure 11: Support for the development of a digital tracking system for material flows
3. Supporting the role of consumers and contracting authorities
 - Measure 12: Extension of the legal guarantee (reversal of the burden of proof)
 - Measure 13: Framing product-specific claims by product standards
 - Measure 14: Increasing contracting authorities' knowledge of circular public procurement and launching of pilot calls for tender in the field of circular economy
 - Measure 15: Circular and sustainable consumption awareness campaign
4. Provide the necessary incentives and tools
 - Measure 16: Support for circular economy financing by working with the financial sector to facilitate the implementation of concrete solutions to circular economy challenges
 - Measure 17: Setting up a network of experts to stimulate reflection on taxation as a lever for the circular economy and proposing tax instruments
5. Supporting the role of employees in the transition
 - Measure 18: Review of general labour market policies in the area of vocational training under federal competence, based on the objectives of this plan
 - Measure 19: Creating broad support through social consultation
 - Measure 20: Assessment of technologies from the point of view of the well-being of the workers concerned
 - Measure 21: Call on social partners to pay more attention to sustainability in wage formation

- 6 Assessing progress
- Measure 22: Analysis of Belgian Eurostat data on the circular economy
- Measure 23: Development of a long-term strategy to monitor the transition to a circular economy using appropriate indicators such as Belgium's material footprint.
- Measure 34: Study on the contribution of the circular economy to biodiversity, economic prosperity and the fight against climate change
- Measure 25: Monitoring the implementation of the Federal Circular Economy Action Plan

Complementary measures in September 2022:

- Measure 26: A federal governance structure for the circular economy
- Measure 27: Extended producer responsibility
- Measure 28: Modernisation of road transport vehicles
- Measure 29: Retrofitting of wagon braking systems
- Measure 30: Recycling of recreational craft
- Measure 31: Analyse how to develop the reuse and recycling of electric vehicle batteries, including bicycles and micromobility.

- Impact

The impact on energy consumption and greenhouse gas emissions is partly related to the extraction, processing and production of raw materials outside Belgium's borders and therefore cannot be mapped unambiguously at Belgian level.

Measure 24 provides for a study on the contribution of the circular economy to biodiversity, economic prosperity and the fight against climate change.

- Budget

Most of the funds for the Federal Circular Economy Action Plan come from Europe through the Belgian Recovery and Resilience Plan and go to calls for projects under the Belgium Builds Back Circular initiative. The expenditure approved amounts to EUR 27 516 000 spread over the period 2021-2024, i.e. an average of EUR 6 879 000/year.

Broadening/strengthening product policy at national and European level

Intervene on standards and the use of products.

- Existing objective/Update

Reduce the environmental impact of products by imposing minimum regulations and information requirements through energy and material efficiency legislation.

- Flagship actions (description)

Belgium advocates ambitious objectives and positions when negotiating the new Sustainable Product Design Regulation. As regards the eco-label and the energy label, Belgium defends ambitious positions for specific regulated or revised product groups. The import and trade of illegal timber and furniture are also subject to measures to reduce the rate of logging of forests.

- Operationalisation (implementation)

The implementation of additional measures of the Federal Circular Economy Action Plan that have an impact on climate and product policy includes (see section 4.A. above): facilitate the reuse and recycling of products and materials and increase the content of recycling; making products more repairable; ban disposable products and packaging and encourage reusable packaging; removing (legal) barriers to circular services and, for example, developing product models as a service; develop a framework for environmental claims²²⁴.

Several of these issues have in the meantime also been taken up by the European Commission, which ensures the harmonisation of these measures and significantly increases their impact. For example, the new EU Batteries Regulation will have an impact in Belgium; the Waste and Packaging Directive is currently being revised; and a textile strategy is being developed.

On 2 June 2023, the Council of Ministers adopted at first reading the preliminary draft law to introduce a reparability score.

With this law, Belgium would become, after France, the second European country to have a reparability score.

The reparability score is introduced for household appliances: washing machines, dishwashers, vacuum cleaners, high-pressure cleaners, lawnmowers, televisions and laptops. The introduction of a reparability score for e-bikes and e-bikes will also be explored.

The preliminary draft law is accompanied by two royal decrees: the first designating the groups of products for which a reparability score has been introduced and the second sets out the arrangements for communication around that index. Entry into force is foreseen for 2026. In the long term, the King may, by means of a Royal Decree, supplement or replace the reparability score with a durability index by adding the criteria of robustness and reliability.

This law is also the starting point for a new consultation of the industry on how to extend the lifespan of appliances. A platform will be set up to allow manufacturers, retailers and repairers to assess the impact of the score on the lifetime of devices entering the market. The platform will also be used to make recommendations to the government to support repair activities and extend the lifetime of devices.

- Impact

Minimum product efficiency requirements in terms of eco-design, toxic substances and energy consumption are constantly raised. Therefore, whenever old appliances are replaced by recent ones, the energy used in the consumption phase decreases. This has a positive impact on greenhouse gas emissions in Belgium and beyond.

The reparability score, the Batteries Regulation, the Packaging Directive, the Ecodesign Regulation on Sustainable Products, the EU Textile Strategy, the Green Claims Directive and the actions of the Federal Circular Economy Plan will help to ensure that products last longer and are more repairable and recyclable. This will lead to a substantial reduction of CO₂ emissions, indirectly also outside Belgium, due to reduced energy consumption for the production and for the extraction and processing of primary raw materials.

²²⁴https://ec.europa.eu/commission/presscorner/detail/fr/ip_23_1692

- Budget

Action plan on fluorinated gases

Development of an action plan with regions on fluorinated gases

Implementation of the Kigali Amendment to the Montreal Protocol

The Kigali Amendment, which entered into force on¹ January 2019, added HFCs to the list of substances controlled under the Montreal Protocol. The planned phase-down of HFCs could save around 80 gigatonnes of CO₂ equivalent by 2050, and is an important contribution to the fight against climate change.

The 198 Parties to the Montreal Protocol agreed to take measures to gradually reduce the production and use of HFCs. The first reduction measures to be taken by developed countries, including the EU, were required in 2019, while most developing countries will start their gradual reduction in 2024.

In Europe, a first regulation on fluorinated greenhouse gases was adopted in 2006, stabilising EU fluorinated greenhouse gas emissions at 2010 levels. On¹ January 2015, it was replaced by the current Regulation (EU) No 517/2014, which reinforced previous measures and introduced a number of far-reaching changes by adding a quota system and a number of bans on the use of fluorinated greenhouse gases in certain sub-sectors. By 2030, the regulation will reduce EU emissions of fluorinated greenhouse gases by two thirds compared to 2014 levels. The expected cumulative savings are 1,5 gigatonne CO₂ equivalent by 2030 and 5 gigatonnes by 2050. The latter figure is higher than the amount of CO₂ produced by one billion return flights from Paris-New York and the sum of all greenhouse gases emitted in the EU in a year. Legislation also stimulates innovation, green growth and employment by encouraging the use of green technologies based on alternatives that are less harmful to the climate.

On 5 April 2022, the Commission presented a legislative proposal to update the F-Gas Regulation. This proposal now needs to be negotiated by the co-legislators of the European Parliament and the Council. Belgium took a constructive attitude during the discussions in the Council of the EU and is one of the Member States which want to maintain a high ambition in reducing the use of gases covered by the Regulation and to promote as much as possible alternative technologies while giving a clear signal and timetable to industry on the technological guidelines to be adopted.

Belgium also intends to strengthen market surveillance and mainly international trade by strengthening customs controls or commercial activities related to the use of these substances. This will be done, inter alia, through the integration of customs controls into the European Single Windows system, but also through close cooperation between the federal and regional inspectorates.

Flemish Region

Implementation of a long-term vision on waste treatment facilities

The 'uitvoeringsplan voor het huishoudelijk afval' (Implementation Plan for household and similar industrial waste) 2016-2022 was approved in 2016. The plan is based on a balance between the supply of combustible waste and the treatment capacity. A second objective is to remove 200 to 250 ktonnes of waste from residual waste in favour of recycling and prevention. This final treatment strategy will be continued in the period 2023-2030 as part of the new local material plan. The implementation plan aims

to improve the energy efficiency of waste incineration by focusing mainly on heat and steam applications and less on green certificates (electricity generation). Additional actions to selectively collect and recycle more waste should lead to a reduction in the amount of fuel waste available. Subsequently, incineration capacity can be gradually reduced. The incineration capacity we maintain in the meantime must have the best possible energy efficiency and the lowest possible emissions.

The combination of a reduced offer and a capacity reduction instrument should lead to a voluntary reduction of the least performing capacity. Such an instrument should be studied and prepared by 2027-2028.

Assuming a balance between the treatment capacity and supply of combustible waste on the one hand and the achievement of the level of ambition of the implementation plan for similar household and industrial waste on the other hand, this means a reduction in incineration capacity. By 2030, this could lead to a reduction of around 25 %. The starting point for a new permit at that time must be that only installations that are necessary for the need for capacity and compatible with a CO₂ neutral company in 2050 will be allowed. In line with the long-term vision on final waste treatment, 225a set of criteria will be developed to this end. An efficient geographical distribution, adapted to the supply of waste and energy needs, can be one of the criteria for assessing whether a given plant can continue to be operated. By mid-2023, VITO will develop a “Dynamic Energy Atlas for Waste Incineration” commissioned by OVAM, which should help the policy to select the most suitable sites for the incineration capacity of (residual) waste in Flanders. Based on this set of criteria, operators of final waste treatment facilities also have a clear framework based on future investments. In addition, consideration will be given to how all waste incineration plants can capture the emitted CO₂ and then use it as a raw material in a circular economy (CCU) in 2050.

In landfills likely to be refurbished, we encourage the greatest possible recovery of raw materials from the landfill. We encourage the design and operation of landfills where non-recyclable waste is deposited, taking into account as much as possible climate-friendly temporary use, reforestation and possible future recovery of the streams that will then be recyclable. With a view to reducing greenhouse gases and increasing energy production, the optimisation of landfill gas recovery is further explored.

Reduce the amount of waste

Above all, waste should be avoided as much as possible. Waste prevention is the most beneficial for the environment and is key to achieving our climate objectives. For Flanders, prevention (including reuse, sharing and recovery) is therefore a top priority.

Flanders aims to achieve absolute decoupling between total waste, economic growth and population growth. This means that the total waste mountain remains at least the same, even if the economy or population increases. The overall waste mountain remains at least stable, but it is preferable to start a shift to bring it down.

The reduction of residual waste in households and businesses is considered a key element to achieve the emission reduction targets in the Flemish waste sector. With regard to the further reduction of residual waste, the following targets shall apply:

- By 2030, the amount of residual household waste per capita will have increased from 146 kg to 100 kg per inhabitant.
- We aim to reduce the amount of commercial waste by a similar percentage by then.

Reduction of residual waste to be incinerated

We also commit to reducing residual waste destined for incineration by taking additional measures in terms of prevention (prevention of food losses, promotion of recycling, etc.) and separate collection (CAP + fraction, event policy, separate collection of bio-waste, separate collection from businesses, etc.) Intensive research continues to find an appropriate mix of instruments to significantly increase prevention, separate collection and recycling of waste. Through the Extended Producer Responsibility (EPR) instrument, we aim to encourage prevention and discourage the supply of products that are difficult to collect, sort and recycle through, inter alia, eco-modulation. The application of the separate collection obligation is also important. The new VLAREMA rules obliging residual industrial waste collectors to record non-compliances in case of sorting errors by their customers allow for targeted enforcement of the legislation. We reduce residual waste and in particular the recyclable fraction of residual waste by 75 %. This will allow an additional 220 000 tonnes of residual waste to be removed from incineration. The less waste we produce and the more we can recycle it, the less residual waste has to be sent to the incinerator, leading to a further reduction in CO₂ emissions.

The reduction of residual waste has an immediate effect on emissions from the waste sector. However, prevention measures that avoid not only residual waste, but also all waste, are preferable to pure separate collection. Prevention is the optimal strategy, as it minimises greenhouse gas emissions during the production, use and treatment phases of waste. We also avoid emissions from raw material extraction and logistics. This is certainly the case with regard to the actual decrease in consumption. But prevention strategies such as local reuse, repair or sharing also help us consume less materials and emit less CO₂, while often equally responding to our needs as a society. By producing fewer new (consumer) goods thanks to these strategies, we reduce our carbon footprint more than by tackling the problem of waste at the end of the chain. This is also in line with the VEKP objective of reducing the carbon footprint of materials by 30 %. Moreover, it is also at the margin of targets set in sectors other than the waste sector (such as the transport sector, which requires less shipments of waste). Finally, prevention strategies also contribute to reducing emissions abroad, as many goods are produced abroad and waste is sometimes treated there.

This approach of strengthening prevention wherever possible, while developing separate collection, is the starting point for the Local Materialenplan (LMP) (uitvoeringsplan huishoudelijk afval en gelijkaardig bedrijfsafval – Implementation plan for household waste and similar waste from companies) for the period 2023-2030. The EIR of the plan developed at the same time as the new plan also shows that prevention measures are very important depending on the climate, throughout the chain of the sectors concerned and in terms of both domestic and foreign emissions. The LMP is also explicitly grafted to VEKP. The measures of the new local material plan (lokaal Materialenplan) will therefore be fully implemented in the context of the Flemish Climate Strategy.

Insist on the pre-fermentation of LFJ waste

On 23 April 2021, the Flemish Government approved the Circular “Action Plan on food losses and (residual) biomass flows 2021-2025” (Actieplan Voedselverlies en biomassa (rest) stromen circulair 2021-2025). This action plan aims to further encourage the prevention, separate collection and recycling of food losses and (residual) biomass flows with a view to achieving cost savings and primary raw materials/materials, among others. The plan provides a framework for authorities and sectors to complete together the cycle of food losses and (residual) biomass flows in Flanders and to achieve the Flemish and European targets in the period 2021-2025. The action plan aligns with the ambitions for renewable energy production and therefore opts for the extension of pre-fermentation with post-composting. Some LFJ waste composting plants in Flanders will be equipped with a pre-fermentation system with post-composting, cf. Government Agreement 2019-2024. In addition, the action plan states that if there is a need for additional capacity for processing LFJ, fermentation facilities with post-composting will be used.

Extension of separate collection of plastics with corresponding sorting and recycling capacity

Separate collection and recycling of plastics from households and businesses is intensified to reduce CO₂ emissions from incineration and primary plastic production. We note that the extension of the PMC bag to all plastic packaging leads to a significant reduction of plastics still present in residual waste. This will be accompanied by increased collaboration with the federal authority to make packaging recyclable or reusable more attractive through product policy or financial incentives.

For businesses too, we are investing in strengthening instruments. By 2030, the sorting and recycling capacity of plastics in the EU must be four times higher than in 2015. Flanders has a vast knowledge base, is a leader in sorting and has a major advantage due to the excellent location of our ports and the synergy between the Flemish chemical sector and the recycling sector. It is essential that Flanders focus on the accelerated development of a larger and more innovative plastic sorting and recycling capacity.

Recycling chemicals in chemistry to replace fossil flows

By deploying and developing chemical recycling, where plastic waste (which cannot be mechanically recycled) is recycled into new raw materials and products, it can be avoided that plastic is further incinerated. In this way, the amount of waste offered for incineration decreases and CO₂ emissions from waste incineration also decrease. Depending on the polymers present in plastics, a distinction can be made between low-energy technologies (such as solvolysis, dissolution, etc.) and those that require more energy (such as pyrolysis or gasification). The resulting products or their purity determine the possibility of direct use of the recycle. This includes, of course, additional treatment, energy needs and CO₂ emissions. When used in chemistry, part of the material may be recycled into new materials, provided that they are not used as fuel. Under the Call Recycling Hub, several project proposals on the treatment of plastic waste (in the broad sense) were selected for financial support. The arguments for innovation led to the selection of several chemical recycling projects.

Use recycled materials for packaging

The production of new plastic packaging leads to high emissions (from plastic oil). This is why we are accelerating our efforts to use recycled materials. We raise the target and aim to ensure that 80 % of all plastic packaging placed on the market is recycled by 2030.

Currently, there is no systematic control of the recycled content of new plastic packaging. Only PET bottles are subject to a measure. In 2021, the rPET content was 37 %. However, the use of recycled materials in plastic packaging other than plastic bottles is expected to increase further in the coming years. By 2021, Fost Plus reported that 65 % of all collected transparent and blue PET beverage bottles will be recycled for bottle-to-bottle recycling. The development of additional recycling capacities for PET as well as for other fractions such as PE films, PET trays and HDPE bottles in Belgium will further increase the use of recycled materials in new plastic packaging in the coming years.

Green and circular economy

The contribution of the circular economy to climate and energy policy

The climate challenge is not just about energy. He asked that we also look at the underlying factors of high

energy demand, namely the high material consumption resulting from a linear economy. Presenting the climate challenge as a material issue opens up opportunities to propose new solutions for greening the economy. Research carried out by the VITO²²⁶ shows that 2/3 of Flemish territorial emissions are material related²²⁷. So we can only achieve climate goals if we succeed in the transition to a green and circular economy. In our current linear economic system, raw materials are transformed into products, which are destroyed at the end of the cycle. On the other hand, the circular economy system focuses on maximising the reusability of products and raw materials and minimising the loss of value. In a circular economy, many strategies are used to continue to make the best use of materials and products in the economy. They are repaired, have a high second-hand value, are scalable and can be easily dismantled and transformed into new products. The materials selected at the beginning of the cycle are recycled or bio-based and are recyclable or degradable at the end of the cycle.

This requires a thorough rethinking of the products and systems in which they are applied: reusability, removability for repair and replacement, introduction of product-service combinations, support for other consumption models based on shared use, etc.

A circular economy can contribute to several climate and energy objectives: contribute to the reduction of energy consumption by reducing material consumption (cf. energy efficiency target), reduce associated greenhouse gas (and other emissions) emissions (cf. greenhouse gas reduction target), increase the share of renewable energy more rapidly (cf. ER target); contributing to greater security of supply (strategic autonomy) and affordability because we can meet our needs with less resources through a circular economy.

The application of circular strategies leads to an overall reduction of CO₂ emissions. This can be done directly (e.g. by avoiding transport) or because the strategy requires fewer materials and/or products to meet the same need, thus reducing indirect emissions.

In this context, it is also useful to look beyond the CO₂ emissions generated in Flanders. Our consumption in Flanders is indeed responsible for greenhouse gas emissions worldwide. The ecological footprint indicators, which calculate the overall impact of Flemish consumption in terms of greenhouse gas emissions (carbon footprint) and material consumption (material carbon footprint), allow mapping. These ecological footprint indicators make it possible to identify where the main impacts are located throughout the chain. By mapping emissions in this way, we avoid proposing solutions that simply shift the problem abroad. Such solutions would not change global emissions. It is therefore useful to complement the accounting of greenhouse gas emissions based on territorial emissions and the formulation of related targets with an approach based on the carbon footprint of Flemish consumption²²⁸.

The vast majority of the carbon footprint of Flemish consumption comes from housing, transport of people, food and a wide range of consumer goods, such as textiles, household appliances and furniture. Studies estimate that global greenhouse gas emissions need to be reduced to an average of 2 tonnes per capita by 2050 in order to achieve the goals of the Paris Agreement²²⁹. Around 60 % of energy-related greenhouse gas emissions in the Flemish Region are originally external to Flanders. Just over half of them were issued outside Europe. At the same time, more than 70 % of the greenhouse gas emissions of Flemish companies were due to production destined for export. So we need to look for alternative, more sustainable ways of

²²⁶Lise Borms, An Vercalsteren, Maarten Christis (VITO) (2021), Het aandeel van materiaal- en niet-materiaalgerelateerde Emissies in Vlaanderen.

²²⁷And it is still a conservative estimate. For example, residential energy consumption is determined, among other things, by how our houses are built (e.g. building insulation) and is therefore also (partially) material related. The transport of persons is also largely related to materials: in an average car journey, around 100 kg of people are transported with 1,5 tonnes of material. Lighter vehicles or shared use will therefore have a significant impact on the share of passenger transport.

²²⁸Vercalsteren A., Boonen K., Christis M., Dams Y., Dils E., Geerken T. & Van der Linden A. (VITO), Vander Putten E. (VMM) (2017) Koolstofvoetafdruk van de Vlaamse consumptie. The carbon footprint includes greenhouse gas emissions of what is consumed in Flanders. It therefore does not take into account Flemish exports abroad.

²²⁹Thus limiting the global average temperature increase to 2 °C and aiming at 1.5 °C.

production and consumption to reduce the carbon footprint.

Therefore, if we want to achieve climate goals, we need not only energy targets, but also directives on materials. These material directives indicate the amount of materials that an economy can use to achieve a sustainable level of raw material use. The net footprint of materials calculated according to the Eurostat methodology (RMC) is 29,1 tonnes per Flemish inhabitant in 2018.

Flanders is putting on a 30 % drop in the cardinal footprint of materials in Flemish consumption by 2030.²³⁰

The use of material directives as a policy approach is therefore an important step towards a circular economy that no longer imbalances the climate.

The contribution of the circular economy to climate policy goes beyond reducing greenhouse gas emissions. Circularity, in all its aspects, can also contribute to a more climate-resilient society. A circular economy that uses materials, energy, space, water and food intelligently is a dynamic and adaptive economy that is better able to adapt to external environmental trends. By focusing on maximising the value of materials and closing (local) cycles, the circular economy has a robustness that is useful to adapt to climate change.

Ambitions for achieving a green and circular economy

To contribute to the various climate and energy objectives through the transition to a green and circular economy, we pursue the following ambitions:

1. Ensure that products placed on the market last longer, are more repairable, reusable, removable and recyclable and/or contain more recycled materials.
2. Encourage businesses to play their part in the transition through appropriate production, distribution, activity and consumption models. These will be adapted so that production processes are more environmentally friendly, products remain in a closed loop longer, used more intensively and more environmentally friendly.
3. Continue to focus on optimal separate collection for reuse and recycling.

This will require a combination of incentives that create a testing space and business opportunities for green and circular models, on the one hand, and the right financial, fiscal and regulatory incentives to steer the market towards the right decisions, on the other. A more innovative way to pursue a policy focused on linking and collaborating between themes and target groups will need to be found.

Climate commitments – social economy

Offer loans for investments in renewable energy and energy efficiency for social economy initiatives. In addition, for sheltered workshops, a call is launched for investment projects that promote a working environment and sustainable mobility.

Finally, additional jobs are created in the social circular economy (e.g. Kringwinkels): jobs related to recycling, repair, reuse and redistribution of goods or materials. These jobs have a significant impact on reducing CO₂ emissions through greater reuse of goods and materials and, due to their labour-intensive

²³⁰ This objective is monitored by the EC Monitor: <https://cemonitor.be/>

nature, offer many opportunities to those furthest away from the labour market at the same time.

New business models

A participatory study showed that companies recognise the need to transition to suitable business models, such as product-service combinations, but that there are bottlenecks and barriers that make them cautious: commitment to existing organisational and governance structures, lack of clarity about the potential for gains, lock-in effect through concentration on the core business, fear of first-come disability, daily strategy determination. The policy aims to remove these bottlenecks through new or adapted policy instruments. The transition will have to take place at different levels: governance, financing, innovation, our behaviour We want to encourage companies to move out of the beaten where they create added value and not only take into account factors such as growth, short-term risks and income in their business models. This will enable businesses, consumers, researchers and authorities to transform the economy together in a more systemic way. We are looking at opportunities to give an advantage to companies that perform well in the field of Corporate Social Responsibility (CSR) and climate change. This can be done in particular by means of public procurement, greater visibility, etc. We also seek to influence consumers' purchasing behaviour by directing them to the more sustainable services and products of companies going through this step, for example by giving them an inch in the right direction. Consumers also play a major role in the economy through demand.

Encouraging circular solutions through public and private procurement

We are leading by example and introducing circular priority rules in public procurement to maximise opportunities for the circular economy. But private companies also have a large purchasing power; we therefore encourage them to focus on circular shopping and responsibility, for example by including circular design and circular purchasing in instruments such as the acceptance obligation and Green Deals. The leverage of the Greed Deal Circulair aankopen is under development and is an important element of Vlaanderen Circulair's governance. Concrete actions will support Vlaanderen Circulair's work diaries²³¹ and develop circular shopping in Flanders. At Flemish level, we use circular public procurement to promote products containing recycled materials, for example. The TOTEM tool can be used for this purpose.

Local administrations also set the right example by setting priority rules in public procurement circulars. Through this process, cities and municipalities can also encourage the market to move towards new business models. The knowledge acquired leads to concrete objectives which can be translated into standard specifications. To achieve this, cities and municipalities must offer sufficient support through collaboration between different organisations, including the VVSG, Het Facilitair Bedrijf and Vlaanderen Circulair.

Using Green Deals for the transformation towards a circular economy

Green Deals as a generic instrument is explained in the chapter on innovation. Due to their participatory nature, they can play a role in the transformation towards a green and circular economy and environmentally friendly consumption. The Green Deals help map existing bottlenecks and provide solutions, translated into a new policy, through collaboration between the participating organisations. Experience with the Green Deal Circulair aankopen and the Green Deal Circulair Bouwen shows that by

²³¹ <https://vlaanderen-circulair.be/nl/onze-aanpak/werkagenda-s>

proactively collaborating and forming a learning network, a pioneering role can be played within the European Union. Green Deals have the necessary means to play their part. The Green Deal Anders Verpakt was launched in 2022. Participants commit to reducing the environmental impact of packaging on the market through prevention and recycling. A Green Deal is also being developed with the healthcare sector to work on sustainability in several areas, including climate, infrastructure, waste and materials.

Development of a symbiosis platform

We are developing and supporting a Flemish platform, the symbiosis platform, for the exchange of data on material flows and the possibilities for their reuse as raw materials. This avoids CO₂ emissions from the amount of primary raw materials that would have been consumed. We support businesses to help them find the best match. As a first step, the platform focuses on the exchange of material flows. In the longer term, it may also be used for the exchange of residual flows of energy and water and for the exchange of underutilised space.

Circular Economy Transition Agenda

Flanders is investing in the ambitious Vlaanderen Circulair partnership, where partners from the financial world, the social sector, research institutes, companies and authorities are genuinely working on this circular transition. Vlaanderen Circulair is a broad partnership composed of Flemish public bodies, professional federations, associations, cities and municipalities, relevant citizens and knowledge institutions. The partnership is structured around six work programmes: circular construction, chemicals and plastics, water cycles, bioeconomy, food chain and manufacturing.

The Vlaanderen Circulair team within OVAM deals with coordination between themes and provides cross-cutting operations around levers. Stuurgroep Vlaanderen Circulair ensures shared engagement and strategic direction from the Social pentagon. A central project group prepares Stuurgroep's decisions, monitors their implementation and ensures interaction between all project leaders and project leaders.

A vision for a circular Flanders by 2050²³² has been developed with a broad group of stakeholders. The text of the vision is not limited to a list of individual stakeholder contributions, but rather the highest common denominator of the views and opinions of the experts consulted and involved.

In addition to the thematic actions, we have identified seven cross-cutting levers crucial for the transition to the circular economy and for which separate working groups will take concrete initiatives in interaction with the work agendas:

1. Policy instruments: through policy instruments, we integrate ideas and remove bottlenecks in laws and regulations. We do so through Flemish regulation, we are putting circular economy principles into practice through local administrations. We liaise with other authorities in Belgium and translate our focus on policies to strengthen the circular economy into European policy.
2. Purchase circular: at Flemish level, we use circular public procurement, for example, to promote products containing recycled materials.
3. Research: the Steunpunt Circular Economy (circular economy support point) conducts research on indicators and the climate impact of the circular economy, among others. We encourage research on the circular economy.

232 Vlaanderen Circulair (2022) Toekomstbeelden: Vlaanderen circulair in 2050, accessed on: <https://vlaanderen-circulair.be/src/Frontend/Files/userfiles/files/Toekomstbeelden%20VC%202050.pdf>

[https://vlaanderen-](https://vlaanderen-circulair.be/src/Frontend/Files/userfiles/files/Toekomstbeelden%20VC%202050.pdf)

4. Communication: active communication will increase ownership of the circular economy.
5. Innovation and entrepreneurship: we drive innovation and entrepreneurship towards circular practices.
6. Funding: the leverage effect of financing includes encouraging investment and mobilising EU funds.
7. Jobs and skills: we ensure that jobs and skills in the near future are fit for the circular reality. For example, the Circulair Werk (t) projects provide a bridge between the circular economy and the social economy.

In order to monitor progress in the coming years, the first Circular Monitor Economie voor Vlaanderen was launched at the end of 2021. This instrument brings together more than 100 indicators on the cycles of our economy and their impact on the environment.

A legal framework adapted to meet the needs of a circular economy

Step by step, we are trying to adapt legislation (e.g. waste legislation, product legislation, liability and intellectual property regulations, legislation on acquisition and rental of goods, permits, producer responsibility) to make it more in line with the needs of a circular economy, including by imposing more requirements on lifespan, reuse, recyclability and recycled content. In doing so, we are also proactively approaching the Federal Government and the European Commission in order to steer federal and European legislation in the same direction. Among others, we are using the intra-circular economy platform to work more intensively with other regions and the federal government on levers such as product standardisation and eco-design, new business models, financing and taxation, indicators and legal barriers.

Minimising the climate impact of building construction through circular construction

On 29 April 2022, the Flemish Government approved the policy programme “Op weg naar circulair Bouwen 2022-2030” (Towards Circular Construction 2022-2030). As part of this policy agenda, we focus, together with stakeholders in the construction sector, on the main challenges hampering the transition to a circular construction economy. For example, we are looking at how to increase market confidence in recycled and reused materials, how to encourage greater collaboration across the value network, how to manage information on our building heritage and measure the environmental impact, and how to get buy-in from the construction industry and builders through awareness raising and training. In this respect, the digitalisation of the construction sector represents an opportunity to support circular construction. In order to reduce the ecological footprint of buildings, we take into account their entire life cycle. We rely on the design of buildings and infrastructure. Through the TOTEM tool, we are continuing our efforts in the three regions to identify accurately and in an accessible way the material impact of buildings. The construction sector is experiencing a very strong growth in digital technologies such as 3D digitalisation, artificial intelligence and BIM (Building Information Modelling), and we want to make the most of these elements. Together with the right partners, we ensure that material data can be easily linked to these new techniques, in order to achieve more targeted prevention and repair, and that Urban Mining supporting a circular construction economy becomes much more effective in the future.

Stimulating transformative construction

In the period 2020-2022, based on research on Urban Mining (2019-2021), researchers from Proeftuin Circulair Bouwen made recommendations for transformative construction. These recommendations have

been compiled in four practical guides including technical solutions, business models, legal information and a guide for local governments. These practical tools allow us to adapt a building to new needs more easily, faster and at lower cost, producing much less waste than today throughout the construction process, or to dismantle it to reuse it so that the impact on the climate is minimal. Furthermore, in 2023 OVAM will continue to work on a guide that aims to group change strategies by building typology, making it easier for customers to move towards the most applicable strategies for their building plans (renovation).

Region Walloon

The *Circular Wallonia* strategy and the *Wallon Waste Resources Plan* are two pillars of the development of the circular economy in Wallonia.

The Walloon Waste and Resources Plan (PWD-R), adopted in March 2018, includes more than 150 measures and 750 actions to avoid, reuse, sort and recycle waste as new resources. In order to facilitate the operationalisation of the implementation of the PWD-R, a prioritisation and prioritisation of actions was carried out in 2020-2021, in order to select the 100 most efficient actions in the areas of reduction of greenhouse gas emissions, reduction of health risks and rational use of resources.

These priority actions will be implemented in particular to accelerate the transition to a circular economy; some are already ongoing²³³. Indeed, it is important that tailored solutions are easily accessible to all, that circular economy initiatives are encouraged and that different types of incentives are available to project owners. The Walloon Region also has the role of avoiding lock-ins and developing public infrastructure, where necessary.

The ***Circular Wallonia strategy***, adopted in February 2021, aims to strengthen and amplify regional dynamics in the circular economy, in a manner consistent with other existing plans or strategies. Its 61 measures mobilise relevant levers in economic policy, innovation and training, public procurement and communication and aim to strengthen collaboration between actors, so as to address the various strands needed for the deployment of the circular economy.

At the level of the framework, the strategy includes “defining or adapting the relevant legal framework to the expansion of circular economy and functional economy projects”. The measures target, on the one hand, actions to stimulate supply in the circular economy (supporting businesses, establishing synergies, with a territorial approach (industrial and territorial ecology), setting up and strengthening financial instruments supporting and encouraging the various actors towards greater circularity: calls for projects, Easy’Green scheme, etc.)

On the other hand, a series of measures aim to increase demand for circular goods and services (tools for circular public procurement, communication, etc.). Within this framework, the strategy contains actions to support the functional economy and new circular business models, both at business level and at the level of public and private consumers.

The main principles of Circular Wallonia are circular design, industrial symbiosis, functional economy, reuse, reuse, repackaging, recovery and recycling, and therefore contributes as a whole to achieving the objectives of this plan.

Implementing a circular economy strategy also means putting in place the conditions for relocating activities to Wallonia, thus seizing opportunities for new activities with high job potential. The jobs created by the circular economy will largely not be relocated because they are based on the provision of services, exchanges and cooperation or

²³³ <http://economiecirculaire.wallonie.be>

territorial animation; they can also offer retraining pathways for workers in declining sectors.

The following actions, stemming from the PWD-R and the *Circular Wallonia* strategy, are considered to be a priority given their significant impact on reducing GHG emissions and supporting the creation of non-relocatable jobs, and will be monitored in particular in the implementation of this plan. Particular attention will be paid to the impact of the following actions and projects in terms of quality local job creation, promoting inclusion and social inclusion.

248	Strengthening the territorial approach to the development of the circular economy, in particular by creating synergies between businesses in a territorial sense and stimulating industrial symbiosis; and by setting up and running a “Circular Economy Stakeholder Community”, a multi-sectoral platform to identify and facilitate opportunities for collaboration between businesses	planned	Circular Wallonia
249	Providing financial support for circularity (calls for ‘circular economy’ voucher projects, Easysd’Green scheme, NEXT programme, subsidies for waste prevention and management, or for reuse, aid for the development of resources, data processing and other forms of recycleries, etc.)	ongoing	Wallon Plan Waste Resources (PWD-R)
404	Set up a Circular Economy Deployment Scoreboard in Wallonia. Propose and set up a set of indicators to monitor the state and evolution of the circular economy in Wallonia, drawing in particular on Donut theory. Particular attention will be paid to quantifying the greenhouse gas emission reductions resulting from the actions of the Strategy.	Planned	Circular Wallonia strategy
405	Promoting networking, creativity and innovation, the emergence of new activities and the development of innovative entrepreneurship, in particular by merging circular economy projects, within the Competitiveness Plants and clusters to finance research, innovation and investment projects in research infrastructures, for example through a specific call for projects.	Ongoing	Circular Wallonia
406	Scaling up the policy of sorting at source and better treatment of waste – Maximising the possibilities for re-use, recycling and other forms of waste recovery	Ongoing	Circular Wallonia strategy / PWD-R
408	Ensure the separation and separate collection of the organic fraction of waste (household and business) throughout Wallonia and promote quality composting	ongoing	PWD-R

409	Prohibit incineration of waste without pre-treatment or because it is likely to be recovered (reuse, recycling, etc.)	ongoing	Waste Decree, Article 41
410	Put in place tools (regulatory, financial, etc.) to ensure the recovery of metals, critical raw materials (e.g. rare earths) as close as possible to the needs of local industry	ongoing	PWD-R
411	Draw up and implement a roadmap for waste management infrastructure planning (CET, EVU, biomethanisation units, recyparks, etc.), which takes account of residual management needs and available capacities, in order to identify the most environmentally and economically efficient options	ongoing	PWD-R link

For action 404, indicators of achievement of the measures will be developed in partnership with project promoters to monitor and develop the strategy, and monitoring of the deployment of the circular economy in Wallonia will be carried out through a scoreboard under measure 17 of Circular Wallonia ("Setting up a Circular Economy Deployment Scoreboard in Wallonia"). This measure provides that: "this Circular Economy Scoreboard will highlight the deployment of the circular economy in Wallonia by integrating elements relating to planetary boundaries, the logic of the Lansink and Moerman scales, climate impacts (in particular greenhouse gas emissions) and social and gender equity (cf. Donut economy)."

Measures to reduce greenhouse gas emissions based on fluorinated gases and especially HFCs can be divided into groups:

- Information/awareness/training of the public on what F-gases are, where to find them, how to manage them, etc.
- Containment and recovery of gases to limit direct emissions during their use or during the destruction/recovery of the goods and equipment for which they are already used.
- The design and development of solutions that use gases with a lower impact on global warming, i.e. low Global Warming Potential (GWP) gases or even zero GWP.

356	Setting up a voluntary agreement (HFCs and energy consumption) with the food production and distribution sectors to reduce their emissions, particularly those linked to energy consumption, the use of fluorinated gases to develop leakage from refrigeration systems	Planned	PWEC
357	Maintaining the Novallia platform and scaling up its action (Kyoto Fund project) to support companies in replacing their equipment with HFC-free refrigeration equipment by improving their eco-efficiency	Discounted	PWEC
384	Accompany the withdrawal of F-gases from the society with adequate information and legislation, in particular for VSEs/SMEs/non-market operators	New	—

385	Establish an individual accreditation to enhance the knowledge of cooling professionals by requiring an assessed and continuous training cycle on the regulatory framework for cooling, fluorinated gases and their alternatives, alternative technologies (including emerging ones where appropriate) within an integrated solution for their overall energy efficiency customer. These training courses could come from the sector itself.	ongoing	—
386	Evaluate and, if necessary, review the system of granting premiums for the investment of refrigeration equipment so as to include it in a financing solution for eco-efficiency	New	—

Encourage continued activity in Wallonia (PACE measure 3.5.11)

The relocation and maintenance of our economic activities in Wallonia are important issues for climate, economic and employment reasons. To this end, the Government will guarantee the condition of maintaining activity and employment in Wallonia for several years for any grant of aid, and will consider extending it to loans and guarantees.

653	Guarantee the condition of maintaining activity and employment in Wallonia for several years for any grant of investment aid in particular, and extend it, where appropriate, to all loans and guarantees in line with developments in the European and Walloon framework	New	

Brussels Capital Region

The Government also undertakes, within the framework of its PACE, to:

- Amplify the implementation of the 2018-2023 Regional Resources and Waste Management Plan (PRDP), taking into account the mid-term evaluation and the Government's priorities for 2022;
- Achieve the objective of making the sorting of food and garden waste mandatory for households and professionals by 2023 and to support in an ambitious manner the shift in sorting habits;
- Assess at the end of the GRDP 2018-2023 whether the actions to reduce waste streams to the incinerator are consistent with the ambition of this plan to reduce direct and indirect regional greenhouse gas emissions and, if necessary, will take complementary actions under the next DCP, which will be endowed with the necessary resources for its implementation;
- As provided for in the RPD (Regional Policy Declaration), to direct the benefits of green certificates (to be granted in 2026) towards the objectives of the PRDP and PREC (Regional Programme for Circular Economy). The granting of green certificates to the incinerator will be abolished for the future;

In the 2019-2024 DPG, the Government undertook to ensure that waste collection will be a free public service for all households in Brussels.

Fluorinated gas:

- Strengthen controls on HFC-refrigerant gases (hydrofluorocarbons) at refrigerators;
- Introduce a financial incentive for new refrigeration installations using alternative refrigerants;

- Amend environmental permits by 2024 to require gases with lower global warming potential (GWP < 150) for new refrigeration plants and air conditioning by 2025; require the use of closing doors for food refrigerators in shops;
- Actively communicate on these obligations and as soon as possible to enable the cooling sector to adapt and train accordingly;
- Put in place as early as 2024 a cold facilitator with the existing facilitators (including the sustainable building facilitator). Its mission will focus on raising awareness, information and training of the sector;
- Strengthen the obligation to recover refrigerant gases from purges via professionals and propose a positive incentive for such recovery;
- Speed up the strengthening of the checks provided for in the Brussels contribution to the NECP;
- By 2024 at the latest, include in the premium scheme the premium foreseen in the Brussels contribution to the NECP for the replacement of HFC refrigeration facilities with plants using gases with lower global warming potential (GWP < 150);
- Assess the appropriate support from public authorities to support SMEs and small businesses in making the necessary investments;
- Raise awareness of the impact of the use of air conditioners on the rational use of energy and on the climate, as well as on the different measures that can be taken to ensure thermal comfort.

Buildings

The measures taken by individual governments must ensure that the existing building stock meets the objectives set out in the regions' long-term renovation strategies. Deep renovation and the transition to a sustainable heating/cooling system are important pillars in this respect. These measures are implemented through standardisation, financial support (bonuses, taxes and loans), guidance and relief, and communication to increase the renovation rate in Belgium and decarbonise the building stock.

In addition, new buildings must meet strict energy performance requirements. The different levels of government are leading by example by accelerating the adaptation of their own buildings to long-term objectives.

The various entities have undertaken to phase out the installation of new coal-fired and oil-fired boilers. Belgium adopts ambitious positions in the European negotiations, including ecodesign: a ban on the sale in 2027 of new coal-fired and oil-fired boilers. This includes taking into account economic and technical exceptions, where appropriate, and putting in place measures to support households.

Prohibition:	Flemish Region	Region Walloon	Region Brussels — Capital
New boilers to coal	/	- Ban in existing buildings²³⁴: 1/1/26 - Ban in new buildings²³⁵: 1/3/25	Since 2021, prohibition of installation of appliances to coal.
New boilers to oil	2022: - Ban on replacing the oil boiler in an area served by natural gas. - Ban on the installation of an oil-fired boiler in new buildings/residential development (depending on the date of application for the environmental permit).	- Ban in existing buildings: 1/1/26 - Ban in new buildings: 1/3/25	Prohibition from new installations from heating to fuel oil.

For urban planning applications in Flanders from 1 January 2025, minimum installation efficiencies will be imposed on central heating systems for new buildings and for

major energy renovations. Heating networks are not subject to these system requirements, which means that it will always be possible to connect to a district heating network.

²³⁴Situations corresponding to the criteria for economic and technical exceptions will be exempted from this deadline

²³⁵Situations corresponding to the criteria for economic and technical exceptions will be exempted from this deadline

Federal State

Federal measures on private housing

- Objectives

On moving towards less carbon-intensive and ultimately fully carbon-free heating and cooling systems:

- INTERFED: Scenario of phasing out the commercialisation/installation of fossil fuel boilers (if possible no new oil boiler sold from 2027 onwards) taking into account the degree of renovation of the building stock and the availability of affordable alternative solutions.

The federal government wants to facilitate the transition of regions towards carbon-free and carbon-free buildings.

- Flagship actions

As regards the renewal of the private building stock, including demolition and reconstruction, it provides for:

- From 1 January 2024, a harmonisation of the two existing VAT measures, the temporary recovery measure which applies throughout Belgium and the permanent measure which applies only in 32 central cities.

The permanent measure will be extended to the whole territory, and in this context the social conditions of the temporary scheme are introduced in the sense that it can be a single, clean dwelling and only for dwellings with a limited surface area (maximum of 200 m²), or that it is a long-term rental in the context of social policy.

In addition, it also provides for certain transitional measures for ongoing projects that will apply until 31/12/2024.

- In addition, the government has taken a series of temporary fiscal measures to reduce fossil fuel dependency for solar panels and heat pumps (see 3.1.2. i).
- Extension of the reduced VAT rate for heat pumps until the end of 2024. It is currently planned to extend the allocation of the reduced rate of 6 % for heat pumps for dwellings under the age of 10. Dwellings over the age of 10 will in any case benefit from the reduced rate for these operations.

Federal measures on federal government buildings

On the renovation and construction of new federal buildings

Existing objective: achieving energy and climate neutrality for federal government buildings.

- Objective

As part of the Interfederal Investment Plan, we are looking at how to achieve the ambition of a climate-neutral government before 2040. This will include, as a matter of priority, a multiannual investment plan to improve the energy efficiency of buildings, reduce greenhouse gas emissions and switch to^{236U} renewable energy sources.

- Flagship actions

- Make the energy performance of federal public buildings compatible with the 2040 neutrality objective, which 50 % of federal buildings must achieve by 2030, taking into account the existing building stock and technical, legal and HR constraints, as well as the accessibility of public buildings

and the continuity of public services.

- The Buildings Agency is responsible for proposing an energy action plan and spaces for offices by 27/10/2023 in order to achieve structural savings on the federal energy bill and office space. No additional funds will be allocated to implement this savings plan.

- Other measures

- For all public services, bodies of public interest and social security institutions

The relevant public contracts will incorporate the commitment to the circular economy, in particular in the field of building materials and the optimisation of additional benefits in terms of climate adaptation (thermal management).

The construction by 2025 of an energy register for the buildings of the federal government (Régie, SNCB, Infrabel, Defence). This cadastre will contribute to achieving the objective of neutrality by 2040, as set out in the National Energy Pact.

An instrument that should not be neglected is the creation of a building energy passport (cf. BECI) as envisaged in the Interfederal Energy Pact.

- INTERFED: carry out a feasibility study on the feasibility of establishing an inventory or energy cadastre of Belgian real estate (public and private sector), both qualitatively and quantitatively.^{236 237}

- Specifically for public buildings:

- Continue monitoring the useful floor area and energy consumption of buildings managed by the property agency
- The use of a purchasing platform (joint purchase) through BOSA will be imposed on all federal public buildings.
- The obligation of the provider to provide user data will be strengthened and appropriate tools for this communication will be developed. This will apply both to gas and electricity (for which data are currently available for about 95 % of the assets managed by the Régie des Buildings), and to heating oil or any other fuel.

Belgium, along with several other countries, has signed the Net-Zero Government initiative, which aims to achieve net zero emissions in public buildings by 2050²³⁸.

Facilitating energy renovations:

Initiate a discussion within the Consumer Commission with the deliberate aim of defining a legal framework for third party investment companies to lend to individuals and businesses and to provide them

²³⁶Coalition Agreement, Federal Government, 30 September 2020.

https://www.belgium.be/sites/default/files/accord_de_gouvernement_2020.pdf

²³⁷ Advies CRB Concrete maatregelen voor het federale deel van het Nationaal energie-klimaatplan <http://www.ccecrb.fgov.be/txt/nl/doc18-1750.pdf>

²³⁸Net-Zero Government Initiative, Office of the Federal Chief Sustainability Officer, 2023.
<https://www.sustainability.gov/federal sustainability plan/net-zero-initiative.html>

with the necessary financial guarantees to carry out energy efficiency improvement works²³⁹.

On the use of green energy:

Continuation of the supply of green electricity and extension of the federal public building stock to all managed buildings.

On the transition to more efficient heating and cooling systems.

Defence: energy renovation

- Existing objective/Update

As regards the management of its infrastructure, Defence complies with the legislation on the energy performance of buildings (EPB) and energy efficiency (EE). In particular, from 1 January²⁰¹⁹, the Defence applies the NZEB (*Near Zero Energy Building*) rules to all new or similar buildings and to all 'major' renovations. In addition, the Defence aims to improve the energy efficiency of existing buildings through small "*Quick Wins*" works/investments to reduce oil and gas consumption.

The ambition ranges from 2018 to 2030:

- Reduce the primary energy consumption of the whole infrastructure by at least 23 %;
- Of the remaining electricity consumption, at least 25 % is produced from renewable energy;
- Reduce overall CO2 emissions by 30 %;
- Water saving of 20 %.

- Flagship actions (description)

The defence energy strategy stems from Penta Energetica:

- Optimise design in terms of location allocation and performance of functions.
- Apply free energy in the concept (daylight, solar heat, etc.).
- Invest as much as possible in passive technologies.
- Maximising energy needs through renewable energy sources.
- Cover the remaining energy needs using the most appropriate techniques and practices effective.

Defence has translated this strategy into its energy policy, which is divided into three strands (*3- Track-Policy*):

1. Data Management:

- Cartograph energy consumption and set targets and monitor them.

2. Heating performance:

- Improving the energy consumption of existing and future heritage by implementing best available techniques.

3. Renewable energy:

- Exploiting renewable energy sources to reduce the use of fossil fuels and dependence on the distribution grid.

- Operationalisation (implementation)

For the implementation of the policy of the three avenues, the following measures will be taken:

1. Data Management:

- The smart metering project involves the installation of digital meters within the defence

²³⁹ Advies CRB Concrete maatregelen voor het federale deel van het Nationaal energie-klimaatplan <http://www.ccecrb.fgov.be/txt/nl/doc18-1750.pdf>

heritage, the data of which will be visualised and reported as part of a national energy control system;

- By means of internal guidelines, savings ambitions are presented to the various neighbourhoods with the aim of raising awareness and involving defence staff in the savings plan;
 - The implementation of an energy management system will be carried out with a level of ambition of 1 district/year. In addition, the transition to integrated management (ISO50001 + ISO14001) will also be developed on a quarterly basis to speed up implementation.
2. Heating performance:
- Energy Performance Contracts (EPCs) will be implemented with a level of ambition of 3 districts/year. This will make it possible to set contractually the CO_2 savings per quarter hour;
 - For other infrastructure as well as for new infrastructure, a major effort will be made to bring it into line with the NZEB regulations or even exceed it. In this area, old buildings will be renovated for comfort and energy performance, and future investments to support major projects (F35, A400M, new HQ) will be developed by making energy savings and energy efficiency key objectives;
 - The implementation of DRFM can speed up the renovation of heritage and provide a solution to the missing investment funds.
3. Renewable energy:
- The installation of solar panels in the various defence neighbourhoods will be accelerated for all defence neighbourhoods. It is therefore expected that a power of 30,5 MWp will be controlled for individual quarters by 2025. Defence works here with power purchase agreements with civil participation, keeping the investment cost for defence at a low level.
 - Connection to district heating networks (Ostend, MHKA).

The biggest economic potential lies in the second track, which involves substantial investments to make existing infrastructure more energy efficient and new infrastructure as carbon-neutral as possible. This path also entails a significant burden in terms of budget and staff, the achievement of which remains a challenge.

- Impact

Before examining the impact of the policy on the three routes, it is important to point out that defence is not yet able to separate operational energy flows (power supply to vessels, start-up of aircraft, etc.) from energy flows linked to buildings. For this reason, the figures below have been accompanied by an asterisk. The smart metering project will improve this situation in the future, so that forecasts could still change by 2040.

Current forecasts (grey line, PAM or *Policy and Measures*) lead to a reduction of 33 % by 2030 and 71 % by 2040. The DRFM project will be necessary to allow the final 100 % leap.

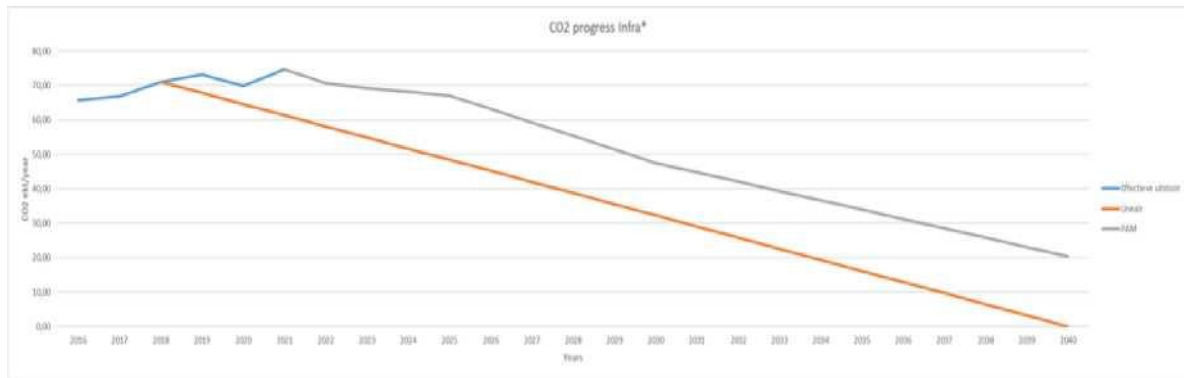


Figure 5: observations and evolution of emissions by 2040

Given the importance of own electricity generation, levies on the primary energy grid will also decrease (despite the increase in electrification).

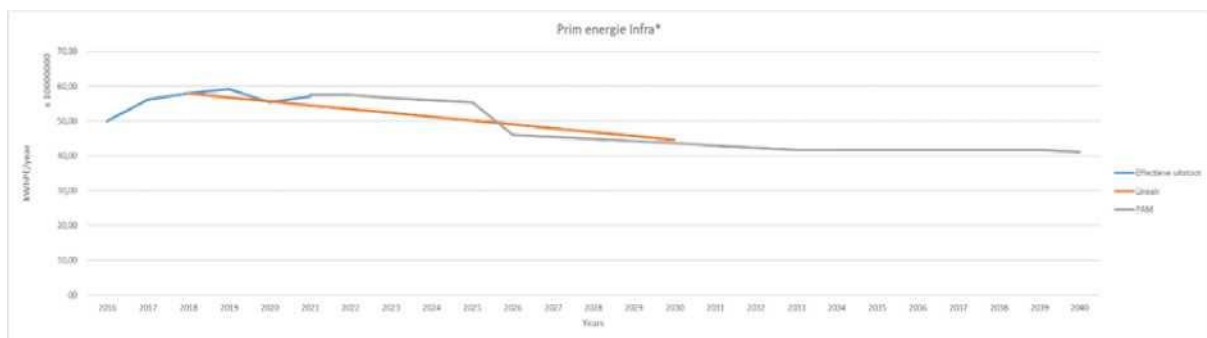


Figure 6: Evolution of primary energy consumption by 2040

- **Budget**

Total assets are estimated at EUR 10 billion (around 5 000 buildings). It is assumed that only 20 % of them are recent installations and therefore 80 % still need to be renovated. As part of the Minister's STAR plan, it is proposed to increase the Infra budget from EUR 155 million (2022) to EUR 485 million (2030) to maintain old buildings and support new capacities. According to current planning, these budgets are largely needed until 2030 for the extension and adaptation of heritage for new capacities; from 2030, more resources can be allocated to energy renovations.

Reduce non-traction energy consumption for rail transport

- **SNCB**

SNCB undertakes to take the necessary measures to reduce the energy consumption of its closed buildings by 40 % (compared to 2005) by 2032. At the end of the management contract (2032), it also undertakes to achieve the target of 50 % energy-neutral buildings.

During the period 2023-2032, SNCB will continue to:

- Generalise as far as possible the use of LED lighting in its building stock.
- Delete fuel heating systems that have reached the end of their life.
- Increase the insulation of roofs gradually.
- Use more and more less energy-intensive office space.
- Ensure that most sites are certified by audits (ISO 50001 or equivalent).

- To establish and periodically update an energy cadastre of buildings.
- Continue energy audits of buildings.

SNCB undertook to increase its production of green electricity by installing solar panels in its own buildings, car parks and sites by 8 GWh when the contract entered into force, 10 GWh in 2027 and 16 GWh in 2032. It will examine the possibility of concluding partnerships to expand green energy production with the ambition of covering up to 20 % of its total energy needs (excluding traction energy).

The SNCB will put in place an effective energy management system by 2027, with the aim of better controlling and gradually reducing its energy consumption.

- Infrabel

Infrabel will reduce the energy consumption of its buildings by 2030 by further concentrating buildings, demolishing abandoned sites, installing 2 MWc of solar energy on buildings and phasing out fuel heating.

To contribute to the objective of energy neutrality of buildings by 2040 and to achieve the intermediate target of making 50 % of buildings energy-neutral by 2030, Infrabel will establish an energy cadastre of non-technical buildings by 2025 (the cadastre covers only buildings whose indoor climate is controlled by a heating or cooling system), continue energy audits of 'large consumers' and develop action plans to implement concrete measures to reduce consumption. In addition, staff buildings will be energy neutral as of 2030.

The following objectives will also be pursued:

- Transition to energy-efficient buildings (building envelope, heating, ventilation and air conditioning, lighting, etc.).
- Acquisition of electric road vehicles and development of the network of internal charging stations.
- Progressive disposal of heating appliances using fuel oil in buildings.
- Evolution towards renewable energy supply through Infrabel's own renewable energy production, partnerships and/or the purchase of guarantees of origin.

Infrabel and SNCB will define the Demand Side Management project with the support of companies active in transport (Elia, Infrabel) and electricity distribution, in particular for the deployment of smart, controllable and bi-directional charging points for electric vehicles in SNCB stations and the SNCB/Infrabel buildings.

Both companies will seek partnerships with the private sector to finance renewable energy production, energy efficiency and demand side management measures, involving industry associations. This will be done in particular in the context of the DRFM (Design, Renovate, Finance and Maintain) project within the Federal Company for Participation and Investment (SFPI).

- Budget and impact

The budgets foreseen to incentivise these actions, as well as the expected impact in terms of reducing CO₂ emissions, will be communicated at a later stage.

Building control room: reduction of surface area

Building control room

Given the diversity of buildings concerned, action plans will be drawn up by building type (differentiated standards will be considered for registered and classified buildings) to achieve energy neutrality. The Régie is responsible for proposing an action plan for energy and office space in order to help achieve structural savings on energy bills and office space. Current barriers (public procurement/market supply, standards in force, rental or partnership deficiencies, budget, continuity of services, etc.) that may prevent implementation within a given timeframe will be examined and addressed, as well as opportunities (additional benefits in terms of climate adaptation, e.g. due to better thermal management of buildings in case of heatwave heatwave); the concept of energy and climate neutrality will be precisely defined.

The improvement of the building stock can also be achieved through more rational use by reducing the size of the portfolio (by no longer occupying land) and replacing buildings with highly energy efficient buildings, in addition to renovation (e.g. new prisons), which also has benefits in terms of climate adaptation.

- Existing objective/Update

Floor area reduction: the objective includes the release of 1 000 000 m² of gross floor area during the period from 1.1.2015 to 31.12.2028.

All abandoned buildings shall be taken into account for this purpose. The imprest account takes account of the abandonment of buildings through or on the basis of their future sale, the creation of a right in rem (mainly by means of a long-term lease) over them for the benefit of a third party or the area which has been/is provided in (sub-) letting. To take account of the net benefit of the area to be released, it will be compared to the increase in the area by purchases, acquisitions by way of a right in rem, new hirings and the renewal of certain leases which took place during the same period.

- Flagship actions (description)

1. Increased use of sales to third parties/expropriations/establishment of a right in rem to third parties through the Federal Acquisition Committee (CFA).
2. Increased use of sales by third parties/expropriations/establishment of a right in rem to third parties by the Buildings Office (in cooperation with evaluators for estimates and with an external notary for deeds).
3. Make more efforts to (sub-) lease to third parties (public and private institutions).
4. Devote more efforts to the development and implementation of master plans (mainly geographical) in order to free up more space.
5. Step up efforts to “raise customer awareness”: reduction of occupied area (at least to the standard of 13.5 m² OA + LSA by ETPg), ideally the NWOW (new working method) becomes the “new standard”.

- Operationalisation (implementation)

In order to implement the above actions, it is necessary to develop an action plan for each sub-project:

- Led by the relevant PM Immo should be carried out by “local” staff (for (1), (2), (3) and (4));
- Led by the Directorate-General for Development Cooperation and Humanitarian Aid is to be carried out by the staff responsible for drawing up the blueprints (for (4)), the occupation standard has been revised downwards as a result of the pandemic and the widespread increase in teleworking. Customer needs were revised downwards in early 2023;
- To be implemented under the leadership of DG Development Cooperation and Humanitarian

Aid (with the support of the DC and the Policy Cell), in collaboration with Immo Project Leaders (for (5)).

The measure develops in detail the Brussels master plans identified so far. Further blueprints still need to be developed in Wallonia (Mons, Namur, Charleroi, etc.) and Flanders (Antwerp, Ghent, Bruges, etc.). Other Brussels blueprints will also be developed in the coming years. However, this fact sheet focuses on the identified and quantified Brussels master plans.

In addition, the Agency will propose an energy and office space action plan before drawing up the 2024 budget for structural savings on the federal energy bill and office space.

- Impact

A decrease of 0,462 kilotonne (kt)/CO₂ eq is foreseen for 2023, 0.678 kt/CO₂ eq for 2025 and 3.094 kt/CO₂ eq for the period 2026-2030.

Greenhouse gas emission reductions in 2026-2030 are total savings for the whole period (1 242 t CO₂ in 2026, 2 026.291 t CO₂ in 2027 and 1 264 t CO₂ in 2028 and 290 t CO₂). These reductions (21 788 MWh at the end of the full masterplan) concern only the master plan detailed above. In order to implement the reduction of the entire area, the Régie des Buildings has a total annual energy savings of 111 020 MWh and 29 831 t CO₂. An assessment of progress towards this target still needs to be prepared by the end of the year.

Finally, as part of the *Spending Review*, estimates of areas released over time (after application of the new standard) were made: the projections are -351 155 m² (including the areas mentioned above), i.e. an estimate/extrapolation of an annual energy saving (via the 3 rule) of approximately -37 500 MWh (or approximately 10 000 t CO₂).

- Budget

The estimated future financing needs are EUR 31 976, EUR 31 870 and EUR 12 768 million for 2023, 2024 and 2025 respectively. For the years 2026 to 2030, this amounts to EUR 23 458. The amounts will need to be reviewed following new developments and the addition of the North Gate project.

As regards public expenditure, part has already been approved, but the breakdown by year has not yet taken place.

The amounts indicated in 2026-2030 are total amounts for the whole period (EUR 12 786 in 2026, EUR 8 542 in 2027 and EUR 1 037 in 2028 and 2029).

These amounts relate only to the budgets needed for the Master Plan mentioned above. For the implementation of the total area reduction, the Buildings Administration determined a total amount of EUR 251 150, excluding additional human resources.

The masterplan, which has not yet been implemented, reduces the occupied area by 204 008 m² and rents by EUR 37 680.

Building control room: install solar panels

- Existing objective/Update

The project provides for the installation of photovoltaic panels (PV) for local consumption.

Concrete actions are carried out in a number of major buildings of the Régie's heritage spread throughout the territory. In the meantime, there is a PV register of the buildings available, with an estimate of

feasibility and any problems and/or opportunities.

They consist of installing photovoltaic panels on sites that allow it (depending on location, roof condition, possible local consumption, etc.)

Placing a framework contract for the study and installation of photovoltaic installations. This is one of the projects supporting the NECP.

- Flagship actions (description)

Installation of photovoltaic panels for local consumption.

The operations are carried out in a number of major buildings of the Régie's heritage spread throughout the territory.

The estimate was made on the basis of an average achievement per operational service of 6 000 m² (to be multiplied by 7 operational services) with an estimated average output of 900 MWh per service on the ground. The target of 42 000 m² corresponds to 7,140 MWc (170 Wc/m² of panels).

- Other measures

- Operationalisation (implementation)

The projects will be implemented on the basis of a framework contract for the study and installation of photovoltaic installations, which is still to be implemented, or on the basis of specific studies and standard public procurement.

In addition to these works in existing buildings, the Buildings Administration stipulates that any new building, regardless of the type of public contract or partnership envisaged, must provide a minimum amount of renewable energy produced locally. There is no exclusive mode of production for renewable energy, but a large part of this renewable energy needs to be produced by photovoltaic panels.

The minimum quantity is set at 20 kWh/m² floor area for all projects and 60 kWh/m² floor area for projects that have to meet the 'passive plus' standard (unless the quantity of 20 kWh/m² is stricter). The budgets needed for the installation of these solar panels or renewable energy production equipment must be included in the overall budget of the project. Feasibility studies must then be carried out in accordance with regional obligations.

- Impact

The project is expected to result in a reduction of 1 638 tonnes of CO₂ per year and a reduction in electricity consumption of 6 300 MWh per year.

Current savings are considered as average (non-cumulative) outputs. Over the years, more or less significant achievements will be made. Priority will be given to the most significant outputs in terms of impact.

- Budget

EUR 17,5 million TPS up to 2030²⁴⁰.

Maintenance costs 1.5 % per year^{AR}.

Building control room: rehabilitation of detention facilities in prisons

- Existing objective/Update

This roadmap, included in the Master Plan (a plan that has been updated several times over the years), aims to create a prison infrastructure for humane detention. The first Master Plan (MP1) dates back to 2008 and is structured around an initial proposal to replace and renovate old infrastructure and build a number of new prisons: Beveren, Termonde, Marche-en-Famenne and Leuze-en-Hainaut. The MP2 dates back to 2010 and is also accompanied by proposals made and even implemented for the Haren penitentiary complex and the Antwerp Pensioner (PI). The MP3 dates back to 2016 and includes a section devoted to internment and new prisons in Bourg-Léopold, Vresse-sur-Semois, Verviers and another in the region of Senegal. An update of the last MP3 is under preparation.

- Flagship actions (description)

Replacement of several particularly obsolete prisons with penitentiary buildings meeting the (current) energy performance standard: the envisaged objective is to free up, over the period 2015-2025 (and beyond), around 12 % of the obsolete gross surface area (approximately 97 000 m² compared to a total prison area of about 86 500 m² gross) in order to achieve savings on total energy consumption. The buildings to be considered for this purpose are those included in the master plan for humane detention, including:

- 'The Old Termonde' (approximately 8 150 m²) will be released and replaced by the 'New Termonde' (MP1): availability foreseen at the end of 2022.
- Liberation of the Begijnenstraat Antwerpen (approximately 22 000 m²) for the IP 'Nieuw Antwerpen' (MP2): the procedure currently foresees making available in May 2025 if everything goes well.
- Libération de Forest, SINT-GILLIS and Berkendael (approx. 31 900 m²) for the benefit of the new prison complex in Haren (MP2): the contract provides for a provision by 2022, if everything continues to happen successfully.
- Liberation Dinant (approx. 3 000 m²) for a new penile in Vresse-sur-Semois (MP3): the current situation does not foresee availability until 2027.
- Liberation of the Lantin Tower (approx. 32 000 m²) for replacement in Verviers and another prison in the Liegeoise region (MP3): the current situation does not foresee availability before 2029 for Verviers and 2031 for an institution in the region of Senegal

Although safety requirements in new prisons are stricter than in old establishments and are therefore equipped with many new technologies that increase electricity consumption, higher energy performance requirements nevertheless allow for proper functioning while respecting overall consumption.

- Other measures

²⁴⁰fiche PAMs 01/2023

- Operationalisation (implementation)

- Impact

Once the full project is implemented (i.e. from 2028), a reduction of 1 284 tonnes of CO₂ per year and a reduction in total consumption of 5 418 000 kWh per year are expected. This estimate needs to be revised to take into account the projected energy consumption for each project (electricity consumption is not included in the analysis). This will also help to clarify the savings achieved over time.

Based on the current consumption of existing and newly built prisons, there is a 62 % reduction in gas consumption (-177 kWh/m² or -41.85 kg CO₂/m² saved). However, the increase in the surface area and the places created by these new projects will have to be taken into account. These estimates will therefore be refined after receipt of the offers of the recently launched projects (theoretical data only available for Termonde and Haren, which will be revised after receipt of the offers from Antwerp and Vresse).

Budget

DRFM

Building control room: Relighting

- Existing objective/Update

Replacement of fluorescent or halogen light sources with LED lamps, possibly with the addition of presence detectors and/or photocells for automatic control of luminous flux. This will reduce the installed capacity and consumption by at least half compared to the baseline, thus reducing CO₂ emissions.

- Flagship actions (description)

Specific actions are carried out in a number of major buildings belonging to the Régie's heritage, spread over the whole territory, whose activity will be maintained in the short and medium term and whose lighting installations are obsolete and energy-intensive (e.g. fluorescent tubes).

They consist of replacing either indoor lighting or outdoor or perimeter lighting in prisons, possibly with the installation of presence detection units that allow the lighting to be switched off automatically when it is no longer necessary.

- Other measures

- Operationalisation (implementation)

The projects will be carried out under the framework agreement on electrical installations in buildings, which entered into force on 1 October 2020, which covers a complete range of latest generation LED lighting.

As there is no specific energy accounting for lighting, savings will be estimated for each project according to the power and number of appliances replaced.

- Impact

A decrease of 0.184 kt CO₂ equivalent shall be taken into account for 2023 and 3.094 kt CO₂ for the period 2026 to 2030.

- Budget

The estimated future financing needs are EUR 4 840 000 per year from 2023 to 2025. For the years 2026 to 2030, that amount shall be EUR 12 100 000.

The expenditure approved amounts to EUR 3 102 000 for 2023.

Building control room: Energy renovation

- Existing objective/Update

Part of the building stock managed by the Buildings Agency is obsolete and no longer meets current energy performance requirements. The main challenge is therefore to reduce the energy footprint of buildings belonging to the Régie des Buildings, taking into account the diversity of its portfolio, the continuity requirements of the services hosted there, as well as technical, architectural and heritage concerns (some buildings are protected).

- Flagship actions (description)

Optimise the energy performance of buildings belonging to the Public Buildings Administration. Due to the wide variety of buildings, different objectives are defined for each type of building:

- Office buildings: achieving energy consumption close to zero and halving the energy consumption of HVAC systems (ventilation and air conditioning) by 2040.
- Protected buildings: reduce the energy consumption of heating, ventilation and air conditioning installations by one eighth by 2040.
- 'special purpose' buildings (buildings with specific functions such as barracks or prisons): reduce the energy consumption of HVAC installations by a quarter by 2040.

The project includes audits (which will make it possible to prioritise investments and actions), as well as the implementation of the insulation of facades and roofs and the optimisation of boiler rooms.

- Operationalisation (implementation)

Several pilot projects for new buildings or major renovations are currently under consideration, which include insulation of the building envelope and very high performance heating, ventilation and air-conditioning systems.

Any project for the construction of a new building must at least meet regional energy performance requirements. The Public Buildings Administration plans to introduce specific stricter requirements for a wide range of projects in order to meet its exemplary obligations. This includes new buildings constructed to replace existing buildings to be demolished, or buildings intended to meet new needs.

In addition to this obligation for new projects and in order to comply with European directives, but also to improve the comfort and energy performance of its building stock, the Régie des Buildings will improve the insulation of the buildings it owns. This will be done initially by means of pilot projects and the implementation of energy audits, but also on a larger scale, taking into account the current capacity of the staff of the Public Buildings Administration.

As a first step, an internal call for projects was launched to identify eligible pilot projects. A framework audit agreement was also published to identify a series of priority actions to establish new projects and work on the entire building stock.

Thanks to the pilot projects, conventional projects and renovations and replacements foreseen in the multiannual investment plan, the Building Management is already progressing in building energy improvement projects.

This extensive plan would require a significant reinforcement of the field teams to initiate, monitor and supervise this work, as the current teams are insufficient even if the work is outsourced. Internal needs are therefore estimated at 22 FTE and external needs at 43 FTE.

These measures are part of a broader action plan, which also covers lighting installations, photovoltaic installations and the reduction of the building stock, which will last for 20 years (until 2040) (see other roadmaps).

- Impact

For the period from 2024 to 2040, a decrease of 3.76 kt CO₂ equivalent per year is assumed.

After the completion of the whole project (i.e. from 2040), a reduction of 59 860 tonnes of CO₂ per year and a reduction in energy consumption of 228 550 761 kWh per year are expected. Real savings are defined as average (non-cumulative) performance. Depending on the years, achievements will be more or less important. Priority will be given to the most significant outputs in terms of impact.

- Budget

Future financing needs are estimated at EUR 14 018 000 for 2023 and EUR 74 531 000 per year from 2024 to 2040.

The expenditure approved amounts to EUR 2 613 000 per year from 2023 to 2025.

DRFM: Financing of the energy renovation of the buildings of the Federal Government

- Existing objective/Update

In 2021, the DRFM (*Design, Renovate, Finance and Maintain*) project was approved. The aim of this project is to accelerate the energy renovation of the buildings of the Régie des Buildings, de la Défense, the SNCB and Infrabel in view of the 2030 and 2040 climate objectives. The idea is to carry out renovations through clusters of around 10 buildings each, and to allow SFPI to co-finance them via a structured platform (the DRFM feeder). This platform will also attract funds from institutional investors to provide the necessary leverage. In the course of next year, the responsible ministers would develop the DRFM entity and launch the pilot projects on the basis of the results of DRFM audits and the cost-benefit analysis, among others.

Reduce energy consumption and thus greenhouse gas production in public buildings through a joint renovation campaign. It concerns the four main federal owners, namely the Public Buildings Administration, Defence, SNCB and Infrabel. The planned renovations are important. They include light, medium and heavy interventions in order to have a sufficient impact.

- Flagship actions (description)

The federal government wants to speed up and coordinate these renovation activities and wishes to do so, inter alia, through a public-private partnership (PPP) approach, which will allow more and more rapid investment in the energy renovation of the federal government's buildings, while also aiming at maximising fiscal neutrality and minimising the impact on public finances. For these DRFM operations, it instructed SFPI and building owners to implement this programme.

- Other measures

- Operationalisation (implementation)

The structure will be developed by a working group, the "Implementation Cell", which will be set up on a temporary basis to develop the structure of the DRFM. This implementation unit will consist of an external expert and a project manager from each of the parties directly concerned: SFPI, Régie des Bâtiments, SNCB, Infrabel and Defence.

The Implementation Unit will develop the structure of the DRFM in two phases. These phases are defined in a first roadmap.

- Impact

The DRFM aims to speed up energy renovation. Phase 1 of the project will allow estimating the number of square meters it will achieve. Three types of renovation are planned, each reducing energy consumption from 20 % to 63 %.

- Budget/

The best investment practices developed through the Recovery and Resilience Plan (RRF) and climate-related will be deployed more widely within the federal government:

- The creation of the Study Committee on Public Investment, tasked with a recurrent report to identify funding needs at federal level for the green transition.

Monitoring of energy consumption

In winter 2022, the government called for simple measures to reduce the consumption of buildings. The impact of these measures is estimated in the middle of the winter at a saving of 15 % of consumption. The Buildings Control Office proposes to equip buildings with remote readable meters for dynamic monitoring of consumption by 2025. These devices will allow users to closely monitor consumption and thus continue efforts to reduce consumption, which can be achieved directly through on-site management.

Flemish Region

Flemish Region On the basis of the latest data from the CPE database, it can be seen that on 1 January 2022, around 6.8 % of the existing building stock, or more than 3 million dwellings (houses and apartments), met the LTRS target. This means that 2,9 million dwellings still need to evolve to meet the 2050 target. This

means that if efforts are spread evenly, over the next 27 years, an average of more than 3 % of the housing stock, or more than 100 000 housing units per year, is expected to move closer to the long-term target set for 2050. If the renovation is carried out in stages, it concerns several dwellings in which one or more energy-saving measures are implemented each year.

To achieve these ambitions, several policy measures have been taken or are ongoing. In order to increase the annual renovation rate of the Flemish building stock, Flanders puts on a balanced mix of (financial) incentives, standards and support actions.

These points are set out in the following paragraphs.

- Strengthened standards for energy-efficient housing

For new buildings, a policy framework has been in place for some time, with **mandatory EPB requirements** for insulation, installations, ventilation and overheating. Minimum standards (e.g. level E, S level, etc.) have been strengthened in recent years, and a minimum requirement has been introduced for renewable energy (see chapter on renewable energy). Since 2015, specific requirements have also been set for substantial energy renovations (ingrijpende energetische renovaties, abbreviated IER).²⁴¹ For building permit applications, from 2022, the level E requirement for the IER was reinforced to E60. For urban planning applications from 1 January 2025, minimum installation efficiencies will be imposed on central heating systems for substantial energy renovations. This minimum requirement will be introduced so that at least one heat pump is installed. Heating networks are excluded from these requirements, which means that it will always be possible to connect to a district heating network. In consultation with stakeholders, regulation, methodology and software are regularly evaluated with a view to achieving a transparent and simple methodology combined with a user-friendly software tool.

For existing buildings, the requirement to have an **EPC** at the time of the sale or rental of a dwelling in the Flemish Region has been in place since 2009. This obligation has been extended to large residential buildings with more than 15 building units, which must have an CPE for the common areas from 1 January 2022. For residential buildings with fewer building units, the obligation is gradually introduced. The EPC will continue to be used as an important policy tool to inform and raise citizens' awareness of the energy performance of their homes.

²⁴¹Renovation (with building permit) in which at least the heating and/or cooling generator is completely replaced and at least 75 % of the outer envelope is (re) insulated.

By analogy with the obligation to renovate non-residential buildings (from 1 January 2022), **the renovation obligation for new owners of energy-intensive residential buildings** (label E or higher) started on 1 January 2023. Owners will be required to undertake a full energy renovation of the property in order to obtain an EPC D label at least within five years of the notarised transfer of full ownership. This obligation is linked to a long-term tightening trajectory that has already been established with a tightening in 2028, 2035, 2040 and 2045 (see Figure 2-23 and Figure 2-24).

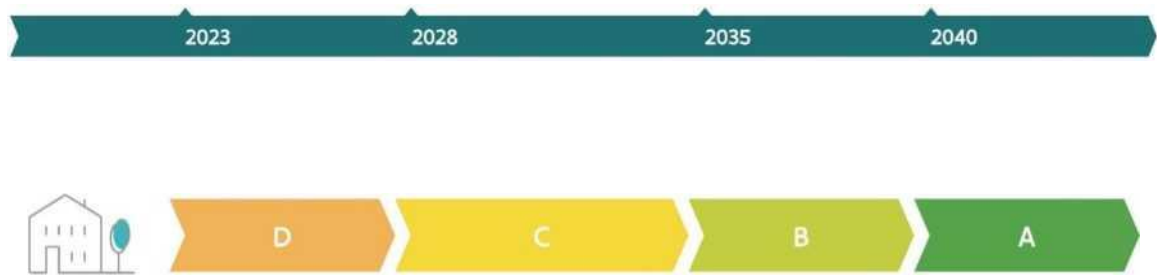


Figure 2-23 Restriction of mandatory renovation of single-family houses



Figure 2-24 Reinforcing the compulsory renovation route of apartments

The roof insulation standard and the double glazing standard are already included in the Housing Quality Policy of the Flemish Housing Code (Vlaams Codex Wonen – VCW). As a result, roof insulation has been mandatory in all independent dwellings (individual houses, studios and apartments, i.e. not rooms) since 2020, and double glazing in all houses (i.e. including rooms) since 1 January 2023. It is planned, in the short term, to replace this standard with a minimum EPC standard which will be gradually tightened up. This tightening will take place in phases, with steps in 2030, (2035) and 2040 (Figure 2-26 in 2-27).



Figure 2-26 Minimum EPC standard for independent dwellings

For multi-apartment buildings, the proposal is to follow an additional trajectory from 2030, under which a minimum building label will be imposed on the whole of the apartment block, irrespective of the sale. This route path will be anchored in the regulations.



Figure 0-3 Minimum CPE standard contained in the Flemish Housing Code (closed buildings and flats)



Figure 2-28 Minimum building label for apartment buildings

Even housing with heritage value can often be made more energy-efficient. However, in some exceptional situations, we are facing the limits of what is possible. Indeed, the preservation of the heritage value must always be guaranteed, even after energy saving measures have been implemented. The higher the minimum energy label over time, the higher the number of classified buildings that will no longer meet the increased minimum energy standard. However, it is important to allow future generations to also benefit from Flanders' most valuable heritage. For protected monuments and urban and rural sites for which it is impossible to reconcile energy saving measures with heritage value (less than 0.5 % of total heritage), an individual derogation or exception, based on an energy opinion for the building heritage, may be authorised. The competent administrations are looking into how this individual derogation or possibility of exception can be enshrined in the Housing Quality Policy of the Flemish Housing Code.

Funding

In addition to standards, appropriate financial support is provided. The basic philosophy is that financial support is used to encourage deep energy renovations that go beyond the norm. In order to optimise the use of limited public funds, these incentives are intended, as far as possible, for target groups that could not afford renovations without aid, linking access and the level of income support more often. Financial support is also linked to key points in the transaction (sale, inheritance, gift, etc.).

A. Financial incentives

Under the Flemish Government Agreement 2019-2024, since 1 July 2022, the renovation premium and

most of the Fluvius energy premiums for energy saving measures have been grouped into an integrated grant, **Mijn VerbouwPremie (MVP)**.²⁴² The following categories of work are eligible: roof, external wall, windows and doors, floor, interior renovation, electrical and plumbing installations and renewable energy (heat pump, thermodynamic water heaters, solar water heaters). The MVP can be requested through a one-stop shop since 1 October 2022. The amount of Mijn VerbouwPremie depends on the distribution into three target groups according to income and household composition (two earnings-dependent target groups for low and medium incomes and one general target group independent of income). Flat-rate premiums are foreseen for the general target group. For target groups with earnings-dependent premiums, the system operates on the basis of aid percentages.

Many mark-ups apply to the basic amounts, in particular for the insulation of the roof and/or external walls in combination with asbestos removal and for insulation work carried out by households benefiting only from the night fare. The aid rates in the average and lower income categories of the Mijn Verbouwpremie premium will also be temporarily increased to 35 % and 50 % respectively in 2022 and 2023 (previously 25 % and 35 %). An increase in the basic premium for roof insulation is also foreseen until the end of 2023. Premiums for heat pumps (hybrids) and thermodynamic water heaters are also temporarily increased (see below).

In order to encourage deep energy renovations, a **CPE-Labelpremie** (EPC label premium) was introduced on 1 January 2021 for investors who renovate a house or apartment with a very bad EPC label to give it at least the C label (an apartment to give it at least the B label) within five years. The amount of the premium varies according to the label obtained after renovation and can be obtained in stages. In order to encourage a wider low-income vulnerable group to carry out deep energy renovations, on the one hand, and to further integrate the energy saving and housing quality bonuses, on the other hand, the EPC label bonus will be increased from 1 January 2024 for owner-occupiers belonging to income target group 3 of the Mijn VerbouwPremie bonus and owners who rent a house or apartment via AIS (see Table 2-2).

	Label CPE achieved after renovation	Amount Target group 1-2	Amount Target group 3	Compensation for MVB target group 3	Compensation for MVB target group 4
	A	5000	6000	2500	3000

²⁴² See: <https://www.vlaanderen.be/bouwen-wonen-en-energie/bouwen-en-verbouwen/premies-en-belastingvoordelen/mijn-verbouwpremie>.

Dwelling or building from collective housing	B	3750	4500	2000	2400
	C	2500	3000	1500	1800
Apartment	A	3750	4500	2000	2400
	B	2500	3000	1500	1800

Table 2-2 – Premium amounts for the CPE label from 1 January 2024

This new version of the EPC label bonus also pays more attention to indoor air quality. Therefore, for claims for reimbursement from 1 January 2025, the EPC label premium paid will be different if a ventilation system has been installed (see Table 2-3). For owner-occupiers with medium and low incomes and AIS landlords, the premium is increased if a ventilation system is installed. For owner-occupiers in the highest income bracket and all other investors, the EPC label premium will be reduced if no ventilation system is installed.

Type building from	CPE label after renovation	Target group 1		Target group 2		Target group 3	
		Not ventilated	With ventilation	Not ventilated	With ventilation	Not ventilated	With ventilation
Dwelling or multi-dwelling building	A	4 000	5000	5000	6000	6000	7000
	B	3000	3750	3750	4500	4500	5250
	C	2000	2500	2500	3000	3000	3500
Apartment	A	3000	3750	3750	4500	4500	5250
	B	2000	2500	2500	3000	3000	3500

Table 2-2 – Premium amounts for the CPE label from 1 January 2025

B. Loans

In addition to the bonuses, loans are also granted to the target group to (partially) pre-finance the total cost of the renovation at a lower interest rate and to repay several times.

The **Mijn Verbouwlening loan (MVL)** replaced the 0 % energy loan in energy houses from 1 September 2022.²⁴³ The MVL can reach EUR 60 000, offers a significant interest advantage over the statutory interest rate and is repayable over a maximum period of 25 years. The MVL may be subscribed by private owner-occupiers, private lessors under a lease through a social property agency (sociaal verhuurkantoor – SVK) or by means of a traditional lease, ACP, etc. for energy renovation works and works improving the quality of the habitat.

Since 1 January 2021, new owners of houses or apartments can apply for **the renovation credit**.²⁴⁴ People buying a property with a poor energy performance and significantly improving it within five years will also be able to benefit from a renovation credit from the bank after the mortgage loan for the acquisition of the property. For applications submitted from 1 January 2023, a reduction in the market interest rate is

²⁴³ See: <https://www.vlaanderen.be/bouwen-wonen-en-energie/lenen/mijn-verbouwlening>.

²⁴⁴ See: <https://www.vlaanderen.be/bouwen-wonen-en-energie/lenen/renovatiekrediet-met-rentesubsidie-bij-energie-renovatie-na-aankoop>

granted on the basis of the EPC label referred to (see Table 2-4) for a period of up to 20 years. In this way, citizens will have a strong incentive to renovate their homes as fully as possible. For applications from 1 January 2023, a renovation credit may be applied for single-family houses/apartments that are renovated to reach at least the D label (formerly label C).

Label before renovation	CPE label to be proven after renovation (within 5 years)	Amount maximum of loan renovation credit	Bonus payments from the Authority shall: Flemish
Habitation/apartment with a CPE E or F label	Minimum CPE D label	— Dwelling: EUR 20,000 — App. EUR 10,000	— 2 %
	Minimum CPE C label	— Dwelling: EUR 30,000 — App. EUR 20,000	— 2.5 %
	Minimum CPE B label	— Dwelling: EUR 45,000 — App. EUR 30,000	— 3 %
	CPE A label	— Accommodation EUR 60 000	— 3.5 %

Table 2-4 Maximum loan amount and interest rate subsidy for renovation loans granted from 1 January 2023

Finally, **interest-free loans** are granted to purchasers as a matter of necessity, that is to say, households that have purchased a poor quality dwelling partly by necessity, without being able to invest any financial means to bring it to a good standard of quality (*see the chapter on energy poverty below*).²⁴⁵

C. Tax incentives

Many incentives are offered through tax instruments to support investments to improve the energy performance of our building stock in a targeted manner.²⁴⁶

As regards **gift tax**, a reduced rate was introduced for energy renovations carried out within five years of the date of the deed of gift. In addition, a reduced rate for substantial energy renovations (IER) has been introduced in a **sales right**. In order to give purchasers more time to renovate under the reduced sales right, for sales contracts concluded on or after 1/1/2022 (or authentic instruments awarded from 1/1/2022 which relate to contracts of sale concluded before that date), the period for the transferee to dispose in full and for consideration of the immovable property which is the subject of the attachment was extended to two years. In 2023, it will also be extended from two to three years. As a transitional measure, the current time limits are also extended to three years by operation of law. Finally, a **100 % reduction in property tax** applies for a period of 5 years for substantial energy renovations.

Tailor-made relief and coaching initiatives

All standardisation and financial support measures are complemented by tailor-made accompanying routes and awareness-raising tools.

In the **Energy Houses** (Energiehuizen), which cover the entire Flemish territory, all citizens will be able to

²⁴⁵See: <https://www.vlaanderen.be/ondersteuning-van-renovatatie-van-noodkoopwoningen>.

²⁴⁶ See <https://www.vlaanderen.be/premies-voor-renovatatie> for an overview of tax advantages related to energy renovation.

benefit from a uniform set of opinions and support for the achievement of energy savings from 2019 onwards. The Energy House guides citizens with clear information on services and measures. In particular, citizens can rely on advice and support in relation to renovation towards Objective 2050, demand and comparison of offers, support for bonuses and the Mijn Verbouwlening loan. In order to improve the provision of support and funding to citizens, the functioning of existing energy houses and housing counters will be integrated in the coming years into a unified energy and housing desk at local level, which will serve as a one-stop-shop for citizens. In order to strengthen existing capacity for renovation advice, two new calls for projects for energy advisory projects were launched in 2021 for a period of 3 years. They will make it possible, on the one hand, to recruit a pool of renovated coaches in the Energy Houses and, on the other hand, to develop a supply around thermography.

During 2022, several reduction routes were assessed, in particular concerning the rental and insulation premium (huur- in isolatiepremie – HIP). The Type 2 monitoring analysis (OS Type 2) focusing on energy saving works and the neighbourhood bonus, it was decided to abandon these relief routes as autonomous measures and to replace them with an enhanced, integrated and centralised support in energy houses.

The support offered by the Energy Houses under the name **Mijn Verbouwbegeleiding** (coaching for personalised renovation) will consist of four pillars:

1. **Advice and coaching on first-line renovation** for citizens of all target groups through a one-stop shop, as it already exists today;
2. Support for personalised renovation (**Mijn Verbouwbegeleiding (at home)** basic for target groups 2, 3 and 4. For target group 4, up to two accompanying journeys are possible.
3. **Support for the personalised renovation of apartments:** associations of co-owners may also request this type of support for the renovation of the common parts of an apartment building.
4. **Support for personalised renovation in the event of full renovation** within five years, for dwellings with an CPE E label, to obtain at least one C label, or apartments with an CPE D, E or F label, renovated to reach a B or higher label within the same timeframe, for the installation of photovoltaic systems and for the maintenance and durability of a heating system. This allows energy houses, in addition to their current core tasks, to offer results-oriented coaching to target groups 3 and 4 and owners (subject to conditions) in the planning and implementation of renovations.

The Energy House can either implement the two new forms of support itself, or use external implementing partners accredited as EPB rapporteurs or energy experts, architects or coaches BENOvation, with whom they establish a collaboration agreement and receive remuneration for doing so.

In addition to expanding the support tasks of energy houses, in 2023 and 2024, they will also be entrusted with additional tasks in the area of supporting household customers in terms of heating durability and installation of solar panels in the context of target group trips.

For the target group of apartments, a specific support offer is being developed. Until the end of 2025, the ACP may call on a framework agreement under which those implementing a **Master's renovation plan** can benefit from an intervention of up to EUR 12 000. In addition, the ACP may receive free support from an accompanying person for a collective renovation project.

With the **building passport** (Woningpas) launched at the end of 2018, the Flemish Authority developed a centrally managed tool that helps owners plan renovation works and relations with the authorities in this regard (including for bonuses and certificates) through targeted overview and advice. By removing barriers and providing seamless tailor-made communication, the Woningpas will stimulate quality renovations and contribute to the dynamics in the renovation market.

Encourage collective renovations

The Energie- en Klimaatpact (Local Energy and Climate Pact – LEKP) focuses on collective renovations. The following objectives have been included in the LEKP:

- Achieve 50 energy renovations organised collectively by 1.000 housing units between 2021 and 2030, of which 25 will be fossil-free renovations.
- 50 out of 1.000 dwellings will be invited to a climate table to discuss a neighbourhood approach (with a focus on the sustainability of heat demand and synergy between the four construction sites) by the end of 2024.

In particular, a *wijkrenovatietool* (neighbourhood renovation tool) will be developed to this end.²⁴⁷ The Quarter Renovation Tool will initially provide information by connecting existing and new data sources, adding knowledge about the renovation steps and providing attractive visualisation. The release of relevant data on investments in renovation, renewable energy, as well as renovation steps (such as permits) and value-added parameters for a collective approach (efficiency gains) should make it possible to convince more owners to take this step. In addition, it is preferable that owners are actively unloaded throughout the renovation process (the one-stop-shop approach). To effectively support this step-by-step 'customer pathway' (citizen-authority-renovation-performing contact), the focus is on automated processes in collaboration with existing monitoring systems and new systems (CRMs).

VEKA focuses on renovating apartment buildings using various instruments. Since spring 2023, associations of co-owners (ACP) have been able to benefit from a framework agreement allowing them to have a master renovation plan drawn up at a very low cost. Throughout this process, they can also benefit from free support. During the renovation phase, the ACP may call on the above-mentioned basic *Mijn VerbouwBegeleiding*. Both *Mijn VerbouwPremie* and *Mijn VerbouwLening* have recently been optimised to better meet the needs of an ACP, in particular by taking into account the income of individual owners. In addition, in the course of 2024, the VEKA will prepare an action plan for the renovation of the apartments by 2030.

Renovation of the social housing stock

Achieving Flanders' ambitious climate and energy targets by 2050 requires a substantial commitment to energy renovation of social housing. In addition to significant efforts in the private housing market, the social housing sector should also catch up in this area.

For social real estate, a 2050 climate action plan will be developed in collaboration with the Agentschap Wonen in Vlaanderen (Agency for Housing – Flanders) and social housing corporations. The Climate Action Plan makes structural improvement of housing a top priority, starting with those with safety and health problems and extremely poor housing. The ambition is to thoroughly renovate the social housing units undergoing renovation, as soon as possible in view of the long-term objective of 2050. The timetable for the EPC standard (see above) will obviously also apply to the social housing stock. To further strengthen this process, a call for experiments on renovation and rapid insulation is being launched, an area that may be moderately regulated. In addition, a modification of the subsidy scheme will be implemented and directed more towards deep renovations. An open call for innovative projects will also be launched in 2023 and 2024 to promote sustainable systems in social housing. The possibility of structurally financing or subsidising integrated energy solutions (ESCO, e.g. heating as a service) is also being explored.

An annual investment volume for the construction and renovation of social housing is foreseen in the

²⁴⁷See: <https://www.energyville.be/onderzoek/project-wijkrenovatietool-digital-twin>

budget. For the period 2023-2024, it is EUR 2,1 billion.

In October 2022, the collective company ASTER (Access to Sustainability for Tenants through Energy Effective Retrofit) started installing solar panels on Flemish social housing. Aster was set up by social housing corporations, with the support of the European Investment Bank (ELENA programme). People living in social housing equipped with ASTER solar panels, whether protected customers or not, pay around 25 % lower than the social or market rate during sunshine periods. . Unconsumed electricity is sold by social housing corporations to Energie.be. The revenues are fully passed on to social housing corporations and social tenants who do not have direct access to solar energy. In five years, some 395 000 solar panels will be installed in 52 500 houses of 64 social housing companies, representing a total capacity of 150 MWp and an investment of EUR 155 million.

Non-residential

Within non-residential buildings, there are six main categories: offices, shops, horeca, care, education and other common and social services (water and waste, cargo handling, laundry, sport and culture, etc.). The branches of offices (excluding authorities), commerce, on-trade and some of the other common and social services) can be grouped together in the business sectors. The part of the office park linked to the authorities, health care, education and the remaining part of community and social services are the social sectors. Most of the buildings date from before 1975.

Standardisation for an energy-efficient non-residential sector

As for new buildings, a policy framework is also in place for non-residential buildings, **with mandatory energy performance requirements** for insulation, installations and ventilation. Minimum standards have been strengthened in recent years, including the introduction of a minimum requirement for renewable energy (see chapter on renewable energy). Since 2017, specific requirements have been set for substantial energy renovations (ingrijpende energetische renovaties – IER), which have been gradually strengthened. In consultation with stakeholders, regulation, methodology and software are regularly evaluated with a view to achieving a transparent and simple methodology combined with a user-friendly software tool.

For existing buildings, a **renovation obligation** was introduced **on 1 January 2022 for non-residential buildings** which are transferred in full ownership by notarial means or on which a building right or long-term lease is established or transferred. The obligation must be fulfilled no later than five years from the date on which the authentic instrument was concluded. The renovation obligation consists of a minimum set of measures:

- If the minimum R value of 0.75 m²K/W is not achieved for roof insulation, roof insulation with a maximum U value of 0,24 W/m²K shall be installed.
- In the case of simple glazing, it shall be replaced by glazing with a maximum U value of 1 W/m²K.
- All central space heating generators older than 15 years old shall be replaced unless it can be demonstrated that the installation meets the minimum refurbishment requirements.
- If a natural gas network is present in the street, an oil boiler cannot be replaced by a new oil boiler.

In addition to all the above mentioned measures, the fully transferred **small non-residential buildings** will have to obtain a **minimum energy label C** from 1 January 2022, no later than five years after the transfer. Small non-residential units transferred as part of a larger building will have to obtain at least the D energy label at the latest five years after the transfer, starting from 1 January 2023. The energy decree provides for a tightening path by 2045 of the minimum energy label to be achieved for small buildings and non-

residential units after their transfer. From 1 January 2023, all transferred large non-residential buildings will have to reach a minimum renewable energy **share of 5 % at the latest five years after the transfer**. A pathway to tighten this minimum share of renewable energy by 2045 is still under development.

From 1 January 2023, a non-residential building unit, in the event of a transfer (sale, long lease, building right) and rental, must have an energy benefit certificate for non-residential buildings (CPE NR). From 1 May 2023, this obligation will be extended to all notarial transfers of full ownership. For large non-residential building units, the requirement to have an EPC NR will gradually increase until all large non-residential building units have an EPC by 2026, even if they are not transferred or rented.

From 2030, a minimum EPC E label will be mandatory for all large non-residential buildings. This corresponds to a share of renewable energy of at least 5 %. Public buildings and authorities' buildings (excluding education) give the right example by complying with this minimum EPC label as of 2028. These minimum energy performance labels will be further strengthened in view of the long-term target to be achieved (in 2045 for public buildings and government buildings and in 2050 for other large non-residential buildings, respectively). As mentioned above, it is not useful to already define further steps in the route of the CPE label. This involves first knowing the distribution of the label and the feasibility of the label in the non-residential building stock, and fine-tuning the methodology. This analysis is planned in the course of 2023. On this basis, a tightening of this route may be developed.

By analogy with the Flemish Housing Code, the following minimum energy performance labels to be obtained independently of the transfer will be introduced from 2030 for small non-residential units. These labels will also be strengthened by 2050.



Figure 0-5: Minimum CPE labels for small NR units in open and semi-open buildings

A similar situation to that of residential units also applies to small non-residential properties with an asset value: due to their asset value, not all classified properties are able to obtain a certain minimum energy label. For this reason, for protected monuments and urban and rural sites where it is impossible to reconcile energy saving measures with heritage value, a derogation or an individual exception, based on energy advice for real estate heritage, is provided for in the energy regulations.



Figure 0-4 The minimum EPC label for small NR units as part of a larger unit (~ apartment) or KNR in enclosed buildings.

Financial support for energy-efficient buildings

A. Financial incentives

Under Mijn VerbouwPremie (see above), premiums are granted for the installation of roof or fighting insulation, wall insulation, floor insulation and replacement of glazing for investors in non-residential buildings. A premium may also be requested from Fluvijs for relighting (i.e. the complete removal of existing lighting), the carrying out of a lighting study, a completely new lighting installation and the control of electrical heat.

For energy savings investments in buildings other than houses, housing units or residential buildings following a 360 study/audit

energy with an internal interest rate after tax of less than 13 % which are not covered by MijnVerbouwPremie or Fluvius' premiums, the **post-audit premium** may be claimed. Since 1 January 2023, the post-audit bonus has been reformed and strengthened. Other incentives include the **eco-bonus +** (described in the ESR industry chapter) and **the increase in the investment premium for energy-saving investments granted** by the federal authority.

B. Loans

From 1 September 2022, **Mijn Verbouwlening (MVL)** will replace the energy loan for non-commercial establishments and cooperative societies.

C. Tax incentives

In order to stimulate substantial energy renovations (IER) in non-residential buildings, there are a number of tax advantages. These tax advantages result in a **reduction in property tax** for a period of five years. The amount of the reduction of the property tax depends on the building's E label and the use of a heat pump or connection to a district heating network. For EIs applying for an environmental permit for urban planning acts from 1 January 2023, the reduction is 100 % for a maximum E label of E60. For urban planning applications from 1 January 2025, minimum installation efficiencies will be imposed on central heating systems for substantial energy renovations. This minimum requirement will be introduced so that at least one heat pump is installed. Heating networks are excluded from these requirements, which means that it will always be possible to connect to a district heating network.

Awareness raising initiatives and follow-up

By analogy with the housing passport, a **building passport** will be developed by the end of 2023. The building passport is a free digital passport that gathers relevant information on all non-residential buildings (except industrial and agricultural buildings) in a single practical overview. The building passport will be launched by phase and supplemented annually with additional information or functionalities. In the future, the building passport will also provide access to more data, possibly on sustainability, energy consumption, accessibility, available infrastructure, mobility, circular use of materials, etc. There could also be a differentiation in the information offered according to the type of building (education, sports, care, commerce, etc.). Unlike housing, a building permit – depending on the type of property – will be available both at building level and at building unit level. On their own initiative, owners can group their buildings into logical groups.

A data platform on non-residential buildings is being developed to support the policy. This data platform will include network operators' consumption data and data from prepared EPCs and EPB reports. This data platform should ultimately provide a more accurate picture of the composition and characteristics of the non-residential building stock. This information can be used as a basis for

monitoring, evaluation and adjustment of policies implemented. As part of the development of the data platform, it will be examined which data can be made available in an aggregated and public manner.

As part of its mission to promote energy efficiency in public buildings (in a broad sense), the Vlaams Energiebedrijf developed a data platform called ' **TERRA**'. This database allows entities to easily track their energy consumption without having to set up a dedicated system for this purpose. Terra has functionalities to monitor climate objectives and manage and monitor energy saving plans and energy saving measures. A link with the Vastgoedbank and Het Facilitair Bedrijf (HFB) database is also foreseen and integration/communication with other authentic data sources containing building information is ongoing.

Policy framework for the renovation of public sector and local government buildings

The public sector has an important exemplary role to play in accelerating the renovation of its own building stock. With this in mind, the Flemish Government calls on local administrations (cities and municipalities (including CPAS), autonomous municipal enterprises, outsourced municipal agencies, districts, inter-municipal cooperatives, provinces, autonomous provincial enterprises, outsourced provincial agencies, police areas and rescue areas) to achieve **primary energy savings of 3 % per year in their buildings and technical infrastructure from 2023 onwards and to** reduce CO₂ emissions by 55 % in 2030 compared to the base year 2015 (equivalent to a reduction of 40.3 % compared to 2019). This is a tightening of the initial targets of saving 2.09 % of primary energy per year from 2020 and reducing CO₂ emissions by 40 % by 2030 compared to 2015. In addition, the scope of the CO₂ reduction target is *extended* to emissions from clean mobility of local administrations. These commitments for local governments are included in the Energie- en Klimaatpact lokaal 2.0 (LEKP), which was approved by the Flemish Government on 8 July 2022.

To monitor these objectives, the VEKA, in collaboration with Fluvius, Vlaams Energiebedrijf (VEB), Netwerk Energie en Klimaat voor Lokale Besturen (part of the VVSG) and the Agency for Internal Administration (Agentschap Binnenlands Bestuur – ABB), set up a monitoring system that will enable local authorities to report on progress made. Netwerk Klimaat will support local administrations in this report. The results are published on the ABB Pactportaal and on the VEKA website.

The objectives and actions for the renovation of the Flemish Authority's building stock are anchored in the Flemish Authority's Internal Climate Plan (Intern Klimaatplan Vlaamse Overheid). These are described in Chapter 3.6.6.

The climate commitments in the health, education, culture, youth and sports sectors are presented below.

Climate commitments in the care sector

In 2017, a declaration containing thirteen climate commitments for the care sector was drawn up. This declaration of commitment was drawn up and signed by the coordinating organisations, the competent minister, the VEB and the VIPA (Vlaams toekomstfonds voor Persoonsgebonden 362).

Aangelegenheden – Flemish Infrastructure Fund allocated to customisable materials). To support the achievement of commitments, resources from the Flemish Climate Fund have been made available in recent years. A number of commitments concern the improvement of the energy performance of the housing stock of the care sector:

1. Aim for annual energy savings of 2.09 % on an annual basis (per healthcare facility), with a saving of 27 % by 2030.
2. Resources are made available to finance personalised energy performance diagnostics. This should lead to an action plan proposing various possible investments and a feasibility study of ESCO contracts.
3. In return for free of charge, institutions undertake to implement, within three years, measures with a return on investment of up to 5 years. If this is not the case, the energy performance diagnosis must be reimbursed.
4. For measures with a longer return on investment, a grant instrument has been developed, co-financed by the Flemish Climate Fund. However, the application of these measures remains optional.
5. Since 2018, all new buildings in the sector will be BEN (defined as being cost-optimal in the NEP methodology) and sustainable.
6. Monitoring and benchmarking tools are being developed in collaboration with Vlaams Energiebedrijf.

From 2023 onwards, further efforts will be made to deepen and broaden energy performance diagnostics, leading to energy performance diagnostics by 2030 or 2050. Similarly, lessons learned from the COVID-19 crisis will be mainstreamed into energy performance diagnostics and emphasis will be placed on the relationship between the importance of good ventilation and the improvement of energy efficiency in healthcare facilities. In cooperation with the VEB, the aim is to set up a one-stop shop enabling installations which have obtained an energy performance diagnosis to fulfil the other obligations arising from energy regulations (EPC NR, enhanced legislative framework for businesses, etc.).

The Ministerial Decree of 18 December 2009 defining the sustainability criteria of VIPA (sustainability criteria of the MA for VIPA) was aligned with the GRO in 2021. New construction projects and major renovations are best directed towards trias energetica, using a combination of energy performance and renewable energy criteria. In addition to mitigation measures, the sustainability criteria of the VIPA AM also include adaptation measures. Pioneering projects receive a bonus in exchange for sharing their data with VIPA so that VIPA can carry out financial impact assessments.

There are two types of subsidies for care infrastructure: the grant for energy performance contracts and the grant for climate investments for long-term projects. The grant for energy performance contracting aims to speed up the implementation and bundling of energy saving measures in an energy performance contract (EPC). It accounts for 10 % of the cost of a journey to facilitate an CPE. The climate investment grant for long-term projects aims to reduce the return time of investments to five years. The subsidy shall be awarded for energy saving measures with a high impact on the reduction of CO₂ emissions and shall amount to a maximum of 60 % of the estimated cost of the investment. Major energy renovations will be subsidised at 100 % instead of 75 % as of September 2019.

Additional financing needs that could accelerate the implementation of energy renovations are also addressed. In 2022, a pathway was approved whereby hospitals and residential care centres can apply for a grant of 30 % of the investment cost if, together with ESCO, they embark on a deep renovation project that reduces CO₂ emissions by at least 45 %. In addition, another interest-free loan compatible with other interest-free financing means is under preparation. The latter aims to provide additional support for renovation measures with a depreciation period of up to five years, as well as for the implementation of

substantial energy renovations.

The energy savings achieved through energy performance diagnostics are monitored by TERRA. In addition, the measures proposed in the energy performance diagnostics are also captured in TERRA, indicating the savings potential and the duration of the return on investment for each measure. The necessary dataset is also collected within TERRA to provide a baseline measure for the relevant structures, which will serve as a basis for further comparative analyses and for monitoring changes in energy consumption and energy saving objectives. The establishments will thus be unloaded as much as possible by dealing with the energy scans and quality control system, screening the potential of the CPE after energy scans, support for installation contracts and CPE contracts, the provision of framework contracts and targeted communication on best practices.

The assessment of the journey already travelled shows that some sectors are not sufficiently reached, that the COVID-19 crisis has had a negative impact on energy consumption and that partnerships are needed to ensure an adequate reporting for the whole sector. From 2023 onwards, further efforts will be made in this area in collaboration with the VEB and the sectoral federations.

Climate commitments in the education sector

In 2016, the Minister responsible for education announced 11 climate commitments for the policy area. Since 2016, more than EUR 100 million has already been made available by the Flemish Climate Fund to support these climate commitments.

The following commitments concern energy efficiency:

1. Over the whole period 2016-2019, a total of EUR 20 million was made available to universities and high schools. In 2022, the Flemish Climate Fund also approved aid for the renovation of the Hogere Zeevaartschool (EUR 1,39 million).
2. Additional resources from the Climate Fund are dedicated to implementing energy saving measures in compulsory education.
3. In 2017, a call for projects was launched through a public procurement procedure, which identified opportunities for energy efficiency investments at school level and developing a renovation plan. Its final report can be used by schools and consultancy firms as a guide, has already been explained at various events and training courses and is available free of charge on the website of the Department of Education and Training. In the meantime, the final report was also discussed in the policy area of education with a view to further integration with other measures on energy in schools.
4. Agion offers interest-free energy loans. For investments in renewable energy (solar panels, solar water heaters, heat pumps, etc.) and for investments in energy efficiency (insulation, replacement of external joinery, renovation of the boiler room, etc.), up to EUR 1 million (excluding VAT) may be borrowed without interest over a period of 15 or 20 years. As of 10 March 2023, Agion has already approved 258 applications for energy loans totalling EUR 9,7 million.
5. Since the beginning of 2023, Agion has been offering schools in the subsidised free education sector the possibility of obtaining accelerated subsidies for investments in heating, roof insulation, external joinery and ventilation through an Energy grant procedure.

In addition to climate commitments for the education sector, in order to improve the energy performance of school buildings, three decrees have also been adopted since 2006, providing the basis for investment programmes for (new) school infrastructure through alternative financing. These are DBFM programmes

(Design, Build, Finance, Maintenance). Following the first decree, the private investment company DBFM Schfüvan Morgen nv was selected to cover the design, construction, financing and maintenance over 30 years of school building projects (new buildings and renovations). In DBFM II, schools are directly involved by being themselves responsible for the tendering process. The third DBFM programme is entitled 'Schfüvan Vlaanderen' and focuses on new buildings. Together, the three DBFM programmes represent an estimated investment volume of EUR 2,5 billion and some 340 school construction projects (new buildings and renovations).

Climate commitments in the cultural, youth and sport sector

In 2022, the Flemish Government again amended the rules for subsidising sectoral investments in cultural and youth infrastructure. Since 2022, following the latest amendment of the regulation on the priority 'energy efficiency' initially introduced in 2017, organisations with a supralocal cultural or youth infrastructure can apply under the priority 'sustainability'. Beneficiary organisations are supported through the adoption of sustainable measures, mainly energy saving measures such as the insulation and replacement of technologies, but also measures to promote the sustainable and circular use of raw materials and materials, water (re) use and biodiversity on site.

In 2018, the Flemish Government launched the interest-free energy loan for cultural and youth infrastructure, which allows organisations to obtain a loan from the Participatiefonds Vlaanderen for the installation of photovoltaic panels and associated batteries. Cultural and youth associations operating at Flemish, provincial or local level under the political themes of culture and youth are eligible for this energy loan and may use the help of the Vlaams Energiebedrijf (VEB) to carry out work for this purpose.

Since 2021, organisations with youth infrastructure can also seek free energy advice from Pulse Transitienetwerk vzw. After the start of Pulse, the Department of Culture, Youth and Media (Departement Cultuur Jeugd & Media – DCJM) asked the VEB to appoint one of its framework contractors to verify the infrastructure and prepare a report focusing on sustainable investments.

As regards sports infrastructure, sustainability is enhanced by the Decree of 5 May 2017 supporting supralocal sports infrastructure and high-level sports infrastructure. In addition, collaboration with the Vlaamse Energiebedrijf (VEB) will be maintained so that the sport sector can use the framework agreements on climate and energy managed by the VEB. For the 14 internal Sports Vlaanderen centres, the VEB remains the leading partner in improving energy efficiency. The aim is thus to make sports centres pioneers as 'centres of excellence' in many areas, including ecology (energy efficiency, water recovery, waste policy, etc.).

Climate commitments in the context of buildings heritage

The Minister responsible for real estate has taken several initiatives to raise awareness among heritage owners about improving the energy efficiency of their heritage.

The energy opinion on building heritage will be launched at the end of 2023. This is an additional document at the CPE. It will allow owners to know the heritage friendly energy saving recommendations they can bring to their property. An owner may apply for an energy opinion on the property from the Agentschap Onroerend Erfgoed (Flanders Heritage Agency) if his property has the status of a protected monument and has a residential, community or small non-residential CPE established after 1 January 2019 with an energy label F, E or D.

In addition, the heritage and energy assessment frameworks – roof insulation, historical joinery, façade

insulation, floor insulation and solar energy in a heritage context – will also be made available to the general public in a harmonised and user-friendly manner. They present the criteria and principles of compromise leading to possible isolation strategies. Heritage aspects, energy and physics aspects of the building are included. They will be a tool for municipalities with a licence as a municipality of real estate heritage, recognised inter-municipal heritage services, architects and entrepreneurs (in restaurants), as well as energy houses, in order to strike a balance between contemporary requirements for comfort and use and the preservation of heritage values. In addition, they justify the choice of insulation strategies in the energy opinion on real estate.

By the end of 2023, the study ‘CO₂-arm verwarmen en koelen van Woningen met erfgoedwaarde’ will produce, on the one hand, a catalogue of low-emission CO₂ heating and cooling systems at the cutting edge of technology and their application potential in houses with heritage value, and on the other hand, an assessment framework for heritage owners and professionals, to provide them with the most appropriate (affordable, energy-efficient) solution available to heat and cool these houses with low CO₂ emissions, taking into account various heritage parameters. The study applies technical solutions to ten common types of heritage houses and presents examples of scenarios.

Moreover, in October 2022, the Minister radically redirected the solar panel policy to address the energy crisis and the high energy bills of the owners: if the installation of solar panels is reversible, solar panels may be installed on heritage sites, with the exception of World Heritage Sites. For World Heritage Sites, the assessment framework for solar energy in the heritage context remains applicable. With detailed information on the property heritage website, we provide guidelines to mitigate the visual impact on heritage.

All these initiatives, supported by the Flemish Climate Fund, enable the heritage sector to define a clear direction and help owners to make their heritage more energy efficient while respecting heritage values. Following an initial evaluation of this new instrument, it will be possible to consider extending the use of the energy opinion on real estate to properties located on an urban and rural site or included in the inventory of architectural heritage.

The exceptions, derogations and exemptions that exist in the framework of the heritage energy regulation are also examined and adjusted if necessary. Protected heritage assets can generally be adapted to the new EPC minimum standards. In exceptional cases, this is not possible because it would cause too much damage to property values. In such exceptional cases, a derogation may be granted.

Cross-cutting measures for the buildings sector

The following policies cover both residential and non-residential buildings.

Encouraging demolition and reconstruction

Assuming that not all buildings can be reduced to a level of energy performance or housing quality at a reasonable investment cost, demolition and reconstruction on the same site or elsewhere is encouraged through many instruments. This is also in line with the objectives of the Space Policy Plan for Flanders.

To encourage the demolition and reconstruction of residential buildings, a **demolition and reconstruction premium** has been created. It increased from EUR 7 500 to EUR 10 000 as of 1 January 2021 and is granted to natural persons who are not eligible for the temporary federal VAT reduction to 6 %. In view of the extension of the federal VAT reduction until the end of 2023, the Flemish demolition and reconstruction premium was also extended for permit applications until the end of 2023. There is currently no clarity on

the permanent extension of a preferential VAT rate for demolition and reconstruction after 2023. If the VAT reduction is generalised, there is no longer any reason to maintain a Flemish demolition/reconstruction premium. In addition, deeds of sale issued from 1 January 2022 are subject to a **reduced registration tax (sales duty)** of 1 % for demolitions and reconstructions.

In the event of partial reconstruction or reconstruction after demolition, a reduction of 50 % **of the property tax will be granted for 5 years from 1 January 2023 for applications for planning permission**, if the new building reaches level E between E20 and E10, and by 100 % if level E is no more than E10.

Durability of the heat demand of buildings

As there will always be a residual demand for energy, in addition to reducing energy consumption, efforts are also being made to make heat in buildings more sustainable by phasing out fossil fuels and heat networks.

Important steps have already been taken in recent years to phase out the use of fossil fuels:

- From 2021, in new major buildings and multi-apartment buildings, natural gas can only be connected for collective heating by cogeneration or in combination with a renewable energy system as main heating. The use of natural gas is also restricted by the ban on natural gas connection in new major buildings, large collective housing projects and large apartment buildings. In addition, the definition of the terms 'major development', 'major collective housing project' or 'large apartment building' has been refined.
- Since 2022, there has been a ban on placing oil-fired boilers in new buildings and in the event of substantial energy renovations (IER). Since 1 January 2022, if there is the possibility to connect to a natural gas network in the street, existing oil boilers can no longer be replaced by other oil boilers. Since 2021, if natural gas is available on the street, the premium for replacing an oil boiler for protected customers has been abolished. Since 1 July 2022, the premium for gas condensing boilers at protected customers has been abolished (= launch of Mijn VerbouwPremie).
- Since 1 July 2022, the cap on connection charges for new natural gas connections in new buildings has been abolished. For existing buildings, the capped connection costs will be abolished as of 1 January 2025.
- For permit applications from 1 January 2025, no natural gas connection will be possible for new buildings. Since 1 January 2023, permit applications for new buildings require low temperature heating.
- For permit applications from 1 January 2025, minimum installation efficiencies will be imposed on central heating systems for new buildings and for substantial energy renovations. This requirement for new buildings is in addition to the requirement of low temperature heating; the minimum requirement will be set in such a way that at least one heat pump is installed. Heating networks are excluded from these requirements, which means that it will always be allowed to connect to a district heating network.

To support the transition to these sustainable heating technologies, many grants and subsidies are granted:

- Many grants are foreseen for investments in solar water heaters, heat pumps (geothermal, air-to-air, air-to-water and air-to-water hybrids) and heat pump water heaters in the residential sector (see above): Mijn Verbouwpremie) and non-residential buildings. The increase in premiums for (hybrid) heat pumps will be extended until the end of 2025.

- Since 1 January 2023, heat consumers wishing to connect to a district heating network will be able to request a **premium for connection to district heating networks**.²⁴⁸ This connection premium is in addition to the support granted in the context of the call for green heat, waste heat and efficient district heating. For collective buildings and multi-apartment buildings with a collective boiler, the premium shall be diversified and granted on the basis of criteria which take into account the number of housing units connected.
- The premium for the condensation gas boiler of the Mijn VerbouwPremie premium will be abolished in 2023.

Owners are also constantly made aware of the adoption of a more sustainable heating mode (e.g. via a decision tree²⁴⁹, communication campaigns, etc.).

To promote the switch to renewable fuels, as many political costs as possible are removed from the electricity bill, making the use of electricity more advantageous than fossil fuels. The Flemish Government recognises the principle of the need for a **tax shift between energy carriers**, namely the reduction of electricity bills by transferring costs to fossil energy carriers. The first steps in this direction have already been taken and are being maintained. To improve the profitability analysis of heat pumps compared to fossil fuel boilers, VREG was asked to introduce, as is already the case in some EU Member States, a more advantageous distribution tariff for heat pumps (e.g. via a separate meter) that takes into account the positive role that heat pumps can offer in terms of flexibility to the distribution network.

Better maintenance of heating installations and decommissioning of energy inefficient appliances

Currently, gas-fired central heating appliances (natural gas, butane, propane) must be serviced every six months by an approved technician. Installations running on oil or solid fuels must be maintained annually. A well-maintained central heating installation delivers significant energy savings, is good for the climate and reduces the energy bill.

In order to **monitor the maintenance and durability of** the heating of buildings, inspection and maintenance documents will be digitised and a **heating database** will be developed to record the implementation of the inspection and maintenance obligation, awareness raising and enforcement. This database will also be made accessible via the building passport. These channels will enable the owner to be informed of the need to plan the maintenance of the central heating system. Inspection of the central heating boiler before the digital meter is installed is also encouraged. Owners where a digital gas meter will be installed will receive a letter to that effect via the distribution system operator prior to the installation of the digital meter, informing them that the current central heating appliances are to be inspected in accordance with the legal conditions. If problems arise with the current central heating appliances after the installation of the digital meter and have not been inspected, the cost will be borne by the owner.

Effective monitoring will allow better compliance with the maintenance obligation and the efficiency requirement, thus increasing the replacement rate. The monitoring of compliance with the decree is the responsibility of the local authorities. Together with local administrations, we will examine how to improve the continuation of this measure and how to accompany it with appropriate awareness, communication and flow of information so that an effective enforcement framework can be put in place.

At the same time as periodic maintenance, **optimisation of the operation in terms of the energy efficiency**

²⁴⁸ See: <https://www.vlaanderen.be/aansluitpremie-warmtenet>

²⁴⁹ See: <https://www.vlaanderen.be/nieuwe-verwarmingsinstallatie-kiezen/naar-woningverwarming-met-warmtepomp-of-warmtenet>

of the boiler is ensured by proper adjustment of the installation (optimisation of settings). After all, many existing (and newly installed) appliances have an oversized capacity and the temperature of the heating water is often set (by the installer) higher than necessary. The combination of the most efficient heating regime (reduced water temperature and more operating hours) and the thought-in use of a thermostat with programming (which may control several heating zones) ensure a saving potential in 1,5 million dwellings without compromising comfort.

Acceleration of asbestos removal from buildings

The presence of asbestos in roofs, roofs and cladding is a major obstacle to achieving the objectives of the long-term renovation strategy. On 20 July 2018, the Flemish Government approved the Asbestafbouw (Asbestafbouw Action Plan) The plan aims to eliminate asbestos in Flanders by 2040 at the latest, with the following sub-objectives:

- Removal of all asbestos-cement applications around buildings by 2034.
- Removal of all easily accessible non-fixed asbestos applications by 2034.
- Removal of all other asbestos applications in poor condition easily accessible by 2040.

With the introduction of the **asbestos certificate**, Flanders is moving forward to ensure the safety of asbestos housing. The asbestos certificate activates the owner of the building. The construction of asbestos-free housing involves removing asbestos-containing materials from the dwelling.

On the other hand, energy interventions also require the safe removal of asbestos materials, so that alteration and ageing no longer pose a risk to the daily use of the dwelling. The two most common examples are asbestos-containing plaster around insulation of pipes and expansion tanks of disused fossil fuel heating systems or the presence of asbestos-cement roofs and facades when installing insulation.

As an incentive, an increased MijnVerbouwPremie bonus is granted where the energy renovation of the roof or external walls is accompanied by the prior removal of asbestos-containing materials. Since 2022, there has also been an increase in the premium for the remediation of asbestos containing roofs in non-residential non-heated buildings in combination with the installation of photovoltaic systems. This bonus is an intervention of the Flemish Authority in the additional costs for the owners of energy renovation works and should ensure an accelerated and safe/responsible demolition of these roofs (see above): Mijn VerbouwPremie)

Increase in the inflow of labour in the construction sector

The capacity of the construction sector represents one of the biggest challenges for achieving the renovation strategy for 2050. VEKA estimates that 30 000 additional workers will be needed by 2030 and even more than 40 000 by 2045. At the request of the Ministers of Labour, Education and Energy, an official working group (composed of the WSE, Education, VDAB, VLAIO and VEKA departments) led by the WSE Department carried out an overview of the policies already in place in these policy areas and faced them with the 4 main challenges in an analytical note:

1. Insufficient inflow into the professions needed for the renovation of buildings (also referred to as construction professions, i.e. the entire construction and renovation chain, including installers, technicians, etc.)
2. Too many departures in the construction professions.
3. Provide graduates and workers in construction professions with the skills, skills and knowledge needed to achieve the energy and climate transition in the building sector.

4. The available labour force is not used sufficiently efficiently.

This shows that much is happening, but actions are very fragmented and that there is a need to have an overview, focus and speed up and intensify existing policies. In consultation with the entire construction and renovation chain, a cross-sectoral agreement will be drawn up in the short term to address this problem.

Policies and measures to promote energy services in the public sector, including energy performance contracting and other energy efficiency services

- Energy services for local authorities

For energy services offered by distribution system operators to their shareholders, either directly or through a public contract awarded by another authority, a phase-out is foreseen in order to comply with the obligations of the Fourth Electricity Directive and the Energy Efficiency Directive. However, in order not to cause a sudden interruption of the services provided, it will be phased out by 31 December 2024. As of that time, no new services will be offered and no new projects will be launched on a new project site. All ongoing projects can still be implemented and will be closed or transferred by 31 December 2027.

In the future, local administrations will be able to rely, inter alia, on the Vlaams Energiebedrijf (VEB), which in recent years has developed a broad portfolio of energy services also useful to local administrations: energy supply and energy efficiency projects, including solar panels, energy renovation, site study and monitoring, strategic building plan and energy performance contracts. In doing so, the VEB acts as a central purchasing body and local governments no longer have to tender. Furthermore, together with Terra (heritage and energy database), the VEB provides an overview of building and energy consumption data, and local administrations can carry out simulations and analyses themselves. The VEB will organise information sessions to inform local administrations about the available offer.

- Energy services for public buildings

In February 2012, the Flemish Government established the Vlaams Energiebedrijf (VEB). The VEB's mission is to relieve the public sector of energy and to make it more sustainable and efficient by (i) purchasing energy centrally and more efficiently, (ii) centralising and working with energy data and (iii) guiding public services to make them more efficient in their energy consumption.

For the latter, the VEB has developed a broad service that encourages public entities to implement energy measures in a structured and easily accessible way. The approach ideally starts with an in-depth heritage analysis using, for example, energy scans (using data analysis and on-site screening to identify the buildings that are the largest consumers, buildings that should be renovated, benchmarking, etc.) The methodology for this heritage analysis has been developed in a building strategy framework contract, available from 2023 onwards and is based on the SURE2050 methodology.²⁵⁰ Based on the energy analysis of the selected buildings, a dynamic energy investment plan is then developed. As regards the implementation of the measures under this plan, the VEB proposes 2 ways to make things easier: (i) accompanying the public entity in an EPC trajectory (energy performance contract) or (ii) making available a 'library' of framework contracts and the associated quality framework, so that public entities can quickly and unconsciously draw on them for their energy measures. In these framework contracts, sustainability and the long-term perspective are always taken into account to achieve climate objectives.

²⁵⁰<https://www.veb.be/energie-besparen/vastgoedstrategie> #: ~: text = Het% 20raamcontract% 20vastgoedstrategie% 20is% 20modulair% 20opgebouwd% 20volgens% 20bovenstaande,% 28scope% 29% 20in% 20te% 20plannen% 20binnen% 20e% 20in% 20bepaalde% 20tijdsperiode.

Region Walloon

The Wallonia Region sets itself **the prospect of achieving net-zero carbon emissions in 2050** with a massive expansion of renewable energies. The exit from fossil fuels, an essential overall effort to comply with the Paris Agreements, is an objective that is difficult to achieve in the light of our current dependence, but essential, like the European objectives.

The energy transition or phasing-out of fossil fuels must therefore be planned and accompanied now. The aim is for the Walloon Region to **plan** investments and set a timetable for decarbonisation by 2050, giving visibility to individuals and sectors, and enabling the energy transition to be organised. In addition, the Walloon Region will ensure that support and support mechanisms for the abandonment of fossil fuels are put in place both for individuals and sectors, as described below and in the following chapters.

The reduction of fossil fuels is substantially based on **the reduction of energy needs** through the insulation of buildings and the improvement of the energy efficiency of industrial processes and vehicles, as described in the following chapters. It is also based on individual and collective behavioural changes aimed **at sobriety**, self-consumption and energy sharing; public authorities need to trigger, support and support.

Electrification of uses is more energy efficient and investments will be directed in this direction. Where electrification is not possible, the least polluting fossil fuel may be an acceptable temporary alternative. The use of decarbonised molecules will therefore be necessary, including biomethane and hydrogen. As the production of these renewable fuels is limited, it is necessary to prioritise the sectors that will have access to them and to put in place the necessary infrastructure to supply them. *Getting out of coal and fuel oil (PACE measure 3.1.1)*

The exit from the use of fossil fuels for heating and domestic hot water in buildings cannot be achieved without the implementation of regulations according to a **timetable** which is both urgent and realistic. However, this is accompanied by important financial support and support mechanisms for the transition to renewable alternatives and the insulation of buildings for households, as summarised below and supplemented in more detail in Chapters 3.2 and 3.4 with the various existing and planned support mechanisms.

Measure 26 of the 'Heat Strategy' to 251 'plan the end of the use of fuel oil and natural gas' forms the basis for the following actions:

251 'Heat strategy' or 'Stratégie de réseaux de déchauffement et de frigates' supplied by cogeneration, fatal energy or renewable energy sources', approved by the Walloon Government in March 2021.

235	Remove coal and fuel oil for heating and domestic hot water from the buildings in accordance with the following timetable for the end of installation of new heating appliances using heating oil and coal: • Buildings new: coal and fuel oil at 01/03/2025 That measure prohibiting the installation of an oil-fired heating system from 1^{March} 2025 does not apply to construction projects which have obtained a final planning permit or single permit issued no more than six months after publication of the order requiring the measure to enter into force, even if the actual completion of the construction is after 1^{March} 2025. • Existing buildings: When replacing heating installations and domestic heating and hot water using oil or coal in an existing building, prohibition to replace with a new heating oil or coal-fired system as of 01/01/2026 This measure prohibiting the installation of a coal-fired or oil-fired heating system from 01/01/2026 does not apply to projects for:	New	DPR/Heat Strategy

	renovation which has been granted a final planning permit or single permit issued no more than six months after the publication of the order requiring the measure to enter into force, even if the actual completion of the renovation is after 01/01/2026. A system to support the abandonment of fuel oil and coal for heating and domestic hot water will be provided for any change to a renewable system²⁵² or for a connection to a district heating system, including waste heat. In addition to the existing premiums for support for renewable heating systems or connection to a district heating network, a fuel tank removal premium will be allocated for any change to a renewable system. This premium will be proportional to household incomes on the same scale as the Habitations Premiums. In the case of fuel oil, accompanying measures take in account one financial intervention, which relates not only to the boiler but to the entire heating installation. The measures will be budgeted and staggered to ensure their sustainability. Natural gas connection will continue to be allowed and supported transitionally. The modalities will be set as part of the fossil gas exit strategy (foreseen in Action 241 of this plan) When translating the above calendars into legal texts, account will be taken of any exceptions for impossibility. technico-economic (by for example: lack of space, technical constraints related to classified aspects of property, etc.) A wide-ranging information campaign will be organised as soon as possible in order to facilitate and anticipate the exit of fossil heaters.		

²⁵² The systems covered are those currently covered by the Habitations premium: heat pump, biomass boiler, solar water cake, biomass stove.

	Support for the sectors in terms of training, employment and retraining to renewable technologies will be stepped up.		
237	In a flood zone, establish a system of voluntary replacement of oil boilers with a more resilient production system that is less impacting in the event of flooding. In case of technical impossibility of replacement the owners/applicants will benefit from bonuses for measures to reduce the risks of "oil pollution"	New	—
239	Extend the rules on the installation and maintenance of heating systems and domestic hot water for combustion to all stoves and boilers and their chimney duct	New	AGW Heating and AGW PEB
240	Ensure effective monitoring of compliance with current and future regulations, especially for fossil fuel appliances and chimneys, and establish a cadastre of heating installations in Wallonia	Planned/new	AGW Heating and EPB Directive (under revision)

The exit schedule is a flagship action to decarbonise heating and domestic hot water production in buildings and effectively direct to alternative systems.

The aim is not to prohibit the use of coal and fuel oil, but to initiate a systematic **replacement** with alternative solutions at the time of the change of installation. For oil-fired boilers, this currently represents around 22.000 cases of replacements per year. The park will therefore take about 25 years to fully renew itself.

The installation of new heating and domestic hot water appliances using coal and heating oil is planned:

- For new buildings: at 1st March 2025 for fuel oil and coal
That measure prohibiting the installation of an oil-fired heating system from 1^{March} 2025 does not apply to construction projects which have obtained a final planning permit or single permit issued no more than six months after publication of the order requiring the measure to enter into force, even if the actual completion of the construction is after 1^{March} 2025.
- For existing buildings (when replacing heating and/or domestic hot water systems): as of 1st January 2026.
This measure prohibiting the installation of a heating system using coal or fuel oil as from 01/01/2026 does not apply to renovation projects which have obtained a final planning permit or single permit issued no more than six months after the publication of the order requiring the measure to enter into force, even if the actual completion of the renovation is after 01/01/2026.

The **details** of this action will be integrated into a revision of the 2009 AGW 'Heating' or Annex C4 to the AGW PEB. When translating the above calendars into legal texts, account will be taken of any exceptions for technical and economic impossibility (for example: lack of space, technical constraints related to classified aspects of property, etc.).

A system to support the abandonment of fuel oil and coal for heating and domestic hot water will be provided for any change to a renewable system or for a connection to a district heating system, including waste heat.

Many **financial support and support to households** for the installation of non-fossil heating systems already exist and their reinforcement is foreseen. On the one hand, support for renewable heat (see Chapter 3.2.) and, on the other hand, support for building renovation (see Chapter 3.4.) The massive renovation of buildings allows for a substantial reduction in heating needs for households and makes the transition to an alternative system less costly and more efficient. In addition, the existing premiums for renewable heat installations (heat pumps, biomass, etc.) substantially reduce the cost of installing a new appliance. In many cases and especially for lower-income households, bonuses make the renewable solution cheaper than the continuation of fossil fuels. Furthermore, project 52 of the PRW allows access until the end of 2023 to the bonuses to replace its heating or domestic hot water system without having to carry out an audit.

In addition to the existing premiums for support for renewable heating systems or connection to a district heating network, a fuel **tank removal premium will be allocated** for any change to a renewable system. This premium will be proportional to household incomes on the same scale as the Habitations Premiums. In the case of heating oil, the accompanying measures will take into account a financial intervention which concerns not only the boiler but the entire heating installation. The measures will be budgeted and staggered to ensure their sustainability.

Special attention will be paid to households leaving coal systems with personalised technical and human support, in line with existing devices (e.g. MEBAR).

Natural gas connection will continue to be allowed and supported transitionally. The modalities will be set as part of the fossil gas exit strategy (foreseen in Action 241 of this plan)

A broad **information and awareness-raising campaign** will be deployed as soon as possible to allow a smooth transition for households and preparation of the sector. The clarity of this campaign will also be important given the similar rules but with different timings already adopted in Flanders and Brussels.

Support for the sectors in terms of **training, employment and retraining** towards renewable technologies will also be strengthened, as detailed in Section 3.8.3.

Furthermore, the **floods** of July 2021 showed significant soil pollution by fuel oil. The use of fuel oil in a flood zone poses a risk of pollution and health impact, and associated costs to be avoided (remediation, preventive measures). With a view to reducing the use of fossil fuels, priority should be given to targeting these situations in flood zones for the replacement of oil boilers with renewable energy systems or natural gas, encouraging the inhabitants of the areas concerned to switch heating systems more quickly. There are multiple solutions: biomass, heat pump, district heating system where the boiler room would not be flooded, etc.

Finally, in order to manage the CO₂ emissions in Wallonia related to heating and the production of domestic hot water in buildings, it is necessary that the rules on **the installation and maintenance** of the appliances concerned cover all types of appliances and all fuels. The same will apply to their chimney duct, in particular to avoid nuisance in the vicinity due to smoke. This will ensure optimal operation of the equipment in place in the buildings. At present, only gas and heating oil boilers are fully regulated. The 2009 'Heating' AGW and the AGW PEB will therefore be adapted to extend the regulations on heating installation and domestic hot water combustion to all stoves, boilers and fuels. In order to ensure effective compliance with the regulations on the installation of heating systems and the production of domestic hot water, compliance monitoring will therefore be ensured. It will also include the issue of inspection and

maintenance of chimneys. The establishment of a **land register** of installations is also a prerequisite for monitoring the release of fossil fuels by 2050. This cadastre will be established digitally and harmonised with the Flemish and Brussels regions to facilitate the work of professionals in the sector and the Walloon administration²⁵³.

Plan the release of non-renewable gas (PACE measure 3.1.2)

In addition to coal and fuel oil, there is a need to exit all fossil fuels, including non-renewable gas by 2050. Given the complexity of the subject, a comprehensive fossil gas exit strategy, accompanied by a vision on future uses of distribution networks and the development of new vectors, will be drawn up in consultation with stakeholders by 30 June 2023.

241	By 30 June 2023, establish, in consultation with stakeholders, a fossil gas exit strategy based on a timeline for 2050 with progressive reduction targets by 2030 and 2040. This strategy will include a vision on future uses of distribution networks, and on the development of new vectors. This strategy will be articulated in line with other measures to reduce energy consumption (including timetable for building renovation obligations) and exit of other fossil fuels (fuel oil and coal).	Discounted	Heat strategy

The establishment of this gas exit strategy and timetable will aim at maintaining the existing **gas network** and at ad hoc extensions where this makes sense, distinguishing in particular:

- densely populated areas, where the gas network has to be maintained as long as alternatives develop (PAC and heat networks). The timetable for the exit of natural gas
 - define these alternatives and identify areas/categories where the exit of natural gas is already possible.
- Less populated areas, where non-grid solutions will be preferred; these must be considered ‘tailor-made’ according to the specific constraints and opportunities of the place (e.g.: local heat networks around businesses, heat pumps, biomass, biomethanisation, etc.). These constraints are also taken into account in the context of the exit of fuel oil.

The evolution of the distribution network will have to take into account the foreseeable **availability of renewable** gases (biomethane, hydrogen, etc.) and consumption reductions. The strategy will therefore aim at gradually reducing the share of fossil gas in the mix, and will provide incentives for technological and industrial developments in renewable or low-carbon gases and new vectors (see below and Chapter 3.2).

Particular attention will be paid to a **balanced use of gas and electricity** based on production capacities and identified needs to decarbonise the different sectors. The infrastructure needed for the transport of renewable gases as part of the decarbonisation of non-electrifiable sectors must also be developed (re-use and development of distribution and transmission networks) (see below and Chapter 3.7).

The measures resulting from the adopted strategy will be included, inter alia, in a revision of the 2009 AGW

²⁵³ The cadastre will be implemented with due regard for privacy and the GDPR.

‘Heating’ or Annex C4 to the AGW PEB.

Brussels Capital Region

The Government also undertakes, within the framework of its PACE, to:

- Legislation: Insert in legislation the ban on the installation of coal-fired appliances from 2021 and link it to accompanying measures.
- Include in legislation the ban on the installation of appliances for heating and/or the production of domestic hot water using liquid fuels (fuel oil) as from 2025.
- Study the possibility of prohibiting the installation of cooking, heating and domestic hot water appliances from natural gas or butane/propane from 2030.
- Develop a reflection on the potential of gas decarbonisation and the development of renewable heat in Brussels.
- Ban on the installation of heating installations powered by coal and liquid fuel, as of September 2021 and June 2025 respectively.
- Adapt the regional legislation to ensure that, from 1 January 2025, heating systems for a project for which there is an application for planning permission, which consists solely of one or more new EPB (energy performance of buildings) units or units treated as new, meet the following conditions:
 - Their heat generators meet ecodesign requirements and produce heat only from electricity and/or energy from renewable sources, as specified by the Government;
 - And/or they are connected to an efficient district heating system as defined by the Government;
 - As already provided for in the ‘EPB Works’ legislation, a full or partial prior derogation from the EPB requirements will remain possible where full or partial compliance with those requirements is technically, functionally or economically impracticable.
- Adapt the regional legislation so that, from 1 January 2030, heating systems for a project for which there is an application for planning permission, which consists only of one or more heavily renovated EPB units meet the following conditions:
 - Their heat generators meet ecodesign requirements and produce heat only from electricity and/or energy from renewable sources, as specified by the Government;
 - and/or they are connected to an efficient district heating system as defined by the Government.
- Assess whether the exclusion of existing buildings under the age of 10 is relevant for access to financial support for the installation of heat pumps;
- End support (via green certificates) for green electricity production from natural gas-fired cogeneration from 2025;
- Prohibit the use of oil-fired boilers over 15 years old as of 2 035 January 1. Combined with the ban on installation in 2025, already recorded in COBRACE (Brussels Air, Climate and Energy Management Code), this clarification leads to a general ban, without exception, on fuel oil as heating fuel in 2040. To this end, the Government will:
 - Develop a cadastre of existing installations in order to have an overview of existing oil-fired boilers and thus support owners in the search for decarbonised solutions;
 - Envisaging a reinforcement of financial support to enable the investments needed to replace installations and the costs of removing and treating tanks;

Inform the owners of heating installations on the future ban, alternative technologies and options for bonuses or switching to a new low-carbon heating system.

Wood heating

- To communicate significantly and regularly on this public health issue and to increase public awareness of the nuisances associated with the burning of wood in all its forms, also outside peak times of pollution;
- Study whether it would be appropriate to include in regional legislation the prohibition on the installation of central heating equipment fuelled on wood or timber products, in the light of the potential for renewable heat in the region:
 - prohibit the placement and use of generators for the production of primary heat supplied with wood with low performance, in terms of energy efficiency or particulate emissions (under the conditions it will determine);
 - integrate wood-based central heating appliances (including those of less than 100 kW) into the EPB heating regulations;
 - review, if necessary, the wood primary energy factor in the EPB works regulations;

- For large installations, if necessary, review the requirements of the environmental permit (including operating conditions) to require the presence of an efficient flue-gas treatment system and to increase the emission thresholds.
- Consult stakeholders in the wood combustion industry on the proposed changes to the regulations;
- While preserving the readability of the bonus system, provide incentives for
 - Provide incentives for the replacement of wood boilers with a collective or individual natural gas boiler or heat pump and the removal of wooden local space heaters (stoves) not complying with Ecodesign 2022.
- Conduct an awareness-raising campaign on the impacts of wood heating, both for indoor and outdoor air, and the best practices to accompany it, based in particular on the conclusions of the study on energy carriers.
- Monitor developments in technologies to improve filtration of particles from burning to wood.
- Enshrine in regional legislation the ban on the combustion of green waste in the open air.
- Consult other entities to develop – as far as possible – a common approach to reducing emissions from wood-fired heating.

New constructions:

- Put in place as early as 2025 a system of structural support for the use of the sustainability benchmark autonomously in as many public projects as possible for new buildings, UAN renovations and deep renovations, so as to facilitate taxation in 2030.
- Mandatory renovation system for the residential sector: Obligation for owners to have an EPB certificate drawn up to determine the energy level of the dwelling and include an estimate of the cost of the necessary works.
- 10 years after the entry into force of the legislative framework (to be adopted in 2023) mandatory renovations for the residential sector: The most energy-intensive buildings will have to make a class leap and reach a consumption of 275 kWh/m²/year by 2033. Owners are allowed a period of ten years from the adoption of the legal framework.
- From 31 December 2029: new EPB units will have to meet the zero-emission EPB requirements.
- 20 years after the entry into force of the legislative framework by then, class D and E buildings will have to also undergo energy renovation to reach the final energy performance target of 150 kWh/m²/year.
- Active communication on this obligation system in the context of the campaign of communication RENOLUTION, so that it is known to all stakeholders.
- Adapt the RENOLUTION bonus scheme in 2024 to support bonus applicants go beyond current technical requirements as well as to support bundled renovation and investment in renewable heat and meet the needs of the tertiary sector;
- Existing support services must evolve towards “One-Stop” logics Shop’ where project promoters can find all the information and all 380

services needed to implement an ambitious comprehensive energy renovation project to enable everyone to benefit from a comfortable building, energy savings and contribute to the climate transition;

- Advocate to the Federal Government that taxation should not encourage demolition/reconstruction to the detriment of renovation, this is consistent with the objectives pursued in the revision of the RRU, which aim to strictly regulate demolitions/reconstructions in order to avoid them as much as possible, and where authorised, to limit their environmental impact;
- Adapting the property tax regime: Increase the reduction in registration duties conditional on the improvement of the EPB;
- Adapting the property tax regime: Study the adjustment of property tax promoting energy savings;
- Coherence of urban planning policy:
 - Evaluation of the latest amendments to the Cobat
 - Standardising the interpretation of the relevant regulatory provisionsurban planning, as well as consistency between the standards set by the municipalities and the objectives of the sustainable renovation strategy
- Adapt the regulatory framework for urban planning and heritage in the light of the objectives of the Sustainable Renovation Strategy
- Identify and establish best practices for energy renovation buildings with a high heritage value.
- Tertiary sector EPB certification:
 - A tertiary certification tool is expected to be operational in 2025, all assignments combined, on the basis of a calculation method drawn up in consultation with the other two regions and a study to determine energy neutrality requirements for all allocations in the tertiary sector.
 - Obligation to hold an EPB certificate for all tertiary units by 2025.
- Replace the obligation in the event of major renovation, following a cost-optimal study and return on the ground of the RénoClick projects, by means of a new decree which will set the final energy requirements to be met in order to meet the objective of zero emissions of the public service sector in 2040;
- By 1 January 2030, regional and local authorities shall acquire only zero-energy buildings, and zero-emission buildings from 1 January 2030, in so far as this is consistent with cost-effectiveness, economic feasibility, wider sustainability, technical suitability and a sufficient level of competition;
- By 1 January 2030, regional and local governments rent only zero-energy buildings, and zero-emission buildings from 1 January 2030, in so far as this is consistent with cost-effectiveness, technical suitability and a sufficient level of competition;
- From 31/12/2026, any new construction belonging to, occupied or intended to be occupied by a public authority will have to meet the 'zero-emission' objective and be equipped with a solar energy production facility;
- Strengthen by 2024 the range of services of and the means available for the scheme Recall to trigger deep renovations from fossil fuels and add a financing tool that can mobilise various sources of capital;
- Integrate regional targets in the implementation of the Housing Emergency Plan (PUL) energy efficiency and decarbonisation;
- Monitoring and compliance with the objectives of PLAGE legislation by public authorities, by in particular in the implementation phase;

- By the end of 2023, assess and converge non-residential tools (PLAGE, audit, EPB certification, etc.) towards a simplified system to ensure the achievement of energy neutrality in 2050;
- Develop and implement a reinforcement strategy for the sector by 2024 tertiary services in general and the public service sector in particular, after assessment of non-residential tools;
- Implement the regulatory framework for the use of the sustainability benchmark of buildings as of 2030 for new public buildings, UAN renovations and deep renovations of public buildings (tertiary and residential);
- By 2035, for new public buildings and UAN renovations, prepare a framework regulatory for the use of the sustainability benchmark with performance charges for a set of technical criteria that are part of the benchmark;
- Continue to update and improve the ergonomics of the Guide website Sustainable building;
- Step up the promotion of the Sustainable Building Guide as part of the RENOLUTION strategy;
- Developing new content that contributes to the rise of skills professionals in the design of sustainable buildings;
- Further develop Tool to Optimise the Total (TOTEM) method and tool Environmental impact of Materials), in particular on the basis of feedback from experience related to its voluntary use;
- Continue communication activities related to the TOTEM context and tool and organise training and seminars to train building designers, with the aim of continuously increasing the number of users of the tool;
- Ensure that public authorities are able to define the ambition of their projects by term of environmental performance and translating it into their public procurement documents (invitation to tender to designate the project author, specifications and performance file, etc.); to this end, draw up recommendations to public developers for the inclusion of LCA (Life Cycle Assessment) requirements relating to the environmental impacts of materials in their specifications;
- Maintain a TOTEM bonus scheme for renovations of residential buildings;
- Regulating the demolition of buildings by requiring their demolition to be assessed, in particular, by establishing a comparative carbon balance between demolition, reconstruction and renovation on the basis of the TOTEM tool, where the demolition works cover a minimum area to be specified;
- The Renolution bonus system for insulation work in tertiary buildings will be modulated on the basis of an environmental impact assessment carried out via Totem from 2025;
- Improve the support system for the use of TOTEM
 - For project leaders and designers (public and private), from 2025, put in place a support scheme for the use of TOTEM for new buildings, new buildings and renovation projects, which will gradually be integrated into the Sustainable Building Facilitator Service;
 - Starting in 2025, set up a financial support system to promote the use of Totem for renovations of tertiary buildings up to the first regulatory milestone PEB.
- Introduce, in the Brussels EPB regulations, an obligation to assess life cycle greenhouse gas emissions using this tool with the inclusion of an indicator in the EPB certificate (expressed in kgCO₂eq per m² per year):
 - As early as 2027, in case of EU LCA obligations, for new buildings a minimum area to be specified in accordance with the revision of the EPBD;
 - As of 2030, for all new buildings and all buildings assimilated to new, what their surface area;

○From 2030 onwards, for deep renovations.

- Investigate thresholds/levels of requirements for the establishment of minimum requirements by life cycle greenhouse gas emission terms;
- Ensure coherence of urban planning policy by adapting the regulatory framework into urban planning and heritage in the light of the circularity objectives pursued; it will pay particular attention to adapting the RRU to promote spatial and technical reversibility of buildings and reuse of materials;
- The Government undertakes to draw up a circular on the energy sobriety of the government of the RBC;
- Reduce energy consumption in non-residential public buildings by:
 - Ensuring a suitable space heating and cooling temperature use and actual occupation;
 - Ensuring the efficiency of existing heating and ventilation systems;
 - Ensuring efficient domestic hot water production;
 - Reducing the consumption of indoor lighting in non-residential public buildings;
 - Proposing to the responsible and managing authorities to reduce consumption of lighting of monuments, exterior lighting of buildings; public administration and seasonal lighting of a decorative nature on the public highway;
 - Raising awareness among civil servants of the rational use of energy.
- Require street lighting to be adapted as closely as possible to basic needs, while ensuring security and public order;
- Study the most appropriate regulatory tool for regulating the lighting hours of the lighting signs and study the extension of the measure to indoor lighting in shops and offices;
- Amend environmental permits by 2024 to require the use of doors food refrigerators in shops (see Chapter 4.1, Pillar 2, lever b);
- Study the most appropriate regulatory tool to prohibit all devices of heating type in open space;
- Require the doors of heated or air-conditioned shops to be closed;
- Study the most appropriate regulatory tool to introduce a moratorium on installation light screens. This study will include a financial impact assessment of the rules governing advertising in public spaces, for STIB and municipalities;
- Limit the time slots for the lighting of all advertising panels from 23 hours to 6h, with the exception of information panels;
- The Region will increase awareness of energy sobriety and increasing electrification uses by putting in place the following actions:
 - In line with the initiatives taken at federal level, launch a campaign to: raising awareness among the public and businesses about possible energy savings at home and in the workplace. This awareness-raising campaign will have to take into account the diversity of the social and-economic landscape in Brussels with a communication specific to the different profiles.
 - Raise awareness of the disadvantages and environmental impacts of using heating supplementary electricity (delayed impact on the bill), increased use of forest-based industries (impact on air quality and health) and oil stoves (impact on climate, safety and health) and reflect on potential levers to regulate them;
 - In accordance with the provisions of the Electricity Ordinance, make available via Sibelga, a free tool for users to regularly encode their index and access the metering data available to the Network Manager.
- The Government agreed on the implementation of the new urban renewal tool: the Axis Contract and the Ilot Contract (CACI). This unique system at the hypra-local scale (based on one

or two drivers or an axis) places a strong emphasis on citizen participation;

- Instruct Urban to test district renovation solutions as part of the urban renewal, through legal tools. This test phase must make it possible to identify and remove obstacles to renovation projects by district. This is consistent with other energy renovation initiatives such as Renolab (Bruxelles Environnement) or Positive Energy District (Innoviris) projects;
- Develop, by 2024, in the context of urban renewal, a process of renewal group of buildings by district, smart with existing mechanisms or works (CACI, RENOLUTION alliance and others), and in partnership with local stakeholders (in particular Brulocalis). A mapping of the potential of neighbourhood approaches will be carried out;
- Test the concept of district renovation coaches for project promoters;
- On the basis of previous tests, assess the appropriateness of making available on a generalised basis:
district renovation coaches;
- On the basis of previous tests, adapt the RENOLUTION bonus scheme to include a additional bonus for applicants for bonuses which are part of this process and facilitate administrative procedures for renovations which are part of an initiative by district;
- Draw up a fossil energy exit plan, in particular:
 - Guiding investments in both gas infrastructure and systems individual or collective heat production that will be placed in the coming years with a clear vision on the decarbonisation potential of gas and its impact on other energy carriers and clarifying a vision of the zoned potential of renewable heat. The aim is to rapidly clarify the regional perspectives in order to ensure full decarbonisation in 2050;
 - This study – based on the experiences of other cities and regions – will be accompanied by a energy Task Force 2050 led by Bruxelles Environnement, of which Brugel and Sibelga are members. It is proposed to include Perspective for the link with spatial planning issues (zoned potential for renewable heat);
 - Establish this strategic working group in 2022 and set it the objective of establishing a vision in the long term on the evolution of the natural gas network by 2050 and sharing it with the main stakeholders in Brussels. At the same time, it will also be responsible for developing and maintaining a shared vision to inform the government about the evolution of the electricity grid and the opportunities offered by the hydrogen vector to support decarbonisation in Brussels.
- In 2025, abolish the current preferential tariff for all gas connections in order to: ensure consistency of price signals. Indeed, the tariffs include a preferential rate for new gas connections compared to the actual cost of this connection for Sibelga. It will therefore be suggested that the actual cost of the gas connection be invoiced as from 2025;
- As early as 2023, abolish the premium for gas boilers and mobilise the amount thus decommitted.
to increase the resources dedicated to support insulation and heat generators meet ecodesign requirements and produce heat only from electricity and/or energy from renewable or hydride sources (gas/electricity) – capable of operating on gas during periods of high heat demand;
- Sustaining the RENOLUTION Alliance and the RENOLUTION brand in the long term: having regard to financial investment and the huge cross-cutting work carried out by all administrations and the private sector in the work of the Alliance Renolution, it is essential to maintain the positive momentum of the Alliance in the long term. It is also essential that human resources in the administrations concerned are sufficient and guaranteed to ensure that the objectives are delivered and achieved in each of the WGs. Furthermore, perception surveys indicate that the brand and concept of the Renolution have impregnated Brussels. It is therefore essential that the Region's joint and concerted communication on actions promoting the Renolution is also maintained;

- Supplement the obligation system for co-properties with the obligation to:
 - Appoint an EPB expert by the Association of Co-Owners;
 - Pre-encoding of the common parts by the EPB expert: he/she carries out the documentation a technique of all co-owned items, identifies each housing unit and carries out a pre-encoding of data and values relating to the parts held in co-ownership and the subdivision of the building into housing units in the calculation software and draws up the missing individual EPB certificates;
 - Have a summary report drawn up by the EPB expert which gathers the information from the EPB certificates issued for the different EPB units to establish a renovation plan for the common parts that allows owners affected by classes F and G to make the necessary class breaks.
- Induce a price signal related to the energy efficiency of the property at the time of change;
- Assess all the tools for the third sector (including the PLAGÉ programme, audit energy,...) and adjust them in consultation with the sector in order to steer the long-term objectives of emissions zeros in the tertiary sector;
- Patrimoine.brussels (Administrations of Monuments and Sites) was to propose in 2021 a specific action plan in close cooperation with Brussels Environment, which will eventually be integrated into the RENOLUTION strategy;
- Include each acquisition/renovation of regional public buildings in the long term objectives term of the Interfederal Energy Pact;
- Assess and strengthen the level of EPB requirements for non-residential buildings;
- Complete the construction of the 6.400 dwellings foreseen in the Regional Housing Plan and the habitat alliance. The construction of these dwellings will take place within the framework of the 2040 energy targets of the social housing stock;
- Develop via Citydev 1000 passive dwellings, including 30 % zero energy every five years
- Promote new working practices to reduce the area per job in the tertiary sector;
- Adapt the standards for maximum surface area per job in the tertiary sector
- Create a RENOLUTION bonus for the installation of sun visors;
- From January 2023 onwards, any major renovation project of a housing unit meets the individual target of 150 kWh/m²/year;
- Since 1 January 2015, all new dwellings must obtain energy consumption. primary less than 45 kWh/m²/year;
- The Government has undertaken to induce a price signal linked to the energy efficiency of the property at the time of the transfer, by means of a reduction in transfer duties, conditional on the completion of a comprehensive energy renovation;
- From January 2023, any major renovation project for public tertiary buildings complies with the 60 % energy performance target for a new building;
- Regional public authorities can only acquire office buildings energy efficient, i.e. with a primary energy consumption of less than or equal to 155 kWh/m²/year;
- Owners or occupants of large building stocks must implement the measures necessary to achieve their quantified energy consumption reduction target. Energy intensive users must carry out an energy audit;
- Supports associations enabling users of high buildings to be supported performance in public housing to avoid energy overconsumption through ownership of techniques within the building;
- Setting up of a platform for exchange between the various actors to enable support for users of high-performance buildings, coordinated by Brussels Environment.

Industry

Through various measures, different governments have committed to improving energy efficiency in industry and greening energy carriers, both through binding regulatory measures and voluntary agreements with industry. Particular attention is needed to support industrial actors in their search for solutions to reduce emissions from hard-to-avoid processes. Some industrial actors rely on CCUS as part of their decarbonisation strategy (see 2.1.1 (ii)).

Individual governments are pursuing policies to encourage the search for innovative low-carbon and carbon-neutral solutions, and to stimulate the deployment and expansion of these technologies. This is done, inter alia, through climate-friendly taxation and a favourable investment climate. The necessary support is also provided to industrial actors wishing to engage in European funding, including through the European Innovation Fund.

Federal State

- Flagship actions

Continue and refine federal business support through energy policy agreements or sectoral agreements up to 2030, sufficiently encourage further efforts, taking into account the level playing field within the EU. Continuous improvement, adequate reporting, avoiding lock-in and accelerating the phasing out of fossil fuel subsidies.

Flemish Region

Policy framework for energy efficiency in industry (ETS and ESR)

Energy efficiency policy framework for energy-intensive companies

The policy framework on energy efficiency for energy-intensive businesses consists mainly of the obligation to establish a compliant energy plan. In 2021, the threshold for companies to comply with this obligation was lowered from 0.5 PJ to 0.1 PJ, so that today all energy-intensive sites need to have a compliant energy plan. This obligation requires sites with energy consumption above 0.1 PJ to draw up an energy plan and submit it to the VEKA for a compliant declaration. An energy plan declared compliant is valid for four years and needs to be updated at each deadline. Beyond a certain break-even point, the measures must be implemented within three years. This profitability limit was reinforced in 2022 from an IRR of 15 % to an IRR of 13 % (after tax).

Alongside the legislation, energy-intensive companies have the possibility to join voluntary energy policy agreements (vrijwillige energiebeleid-reenkomsten – EBO). By voluntarily joining an energy policy agreement, energy-intensive companies commit to go beyond existing energy efficiency regulations, in exchange for a number of counterparts from the Flemish Authority.

Previous energy policy agreements were valid until the end of 2022. A new energy policy agreement was launched on 1 January 2023 for the period 2023-2026. Compared to previous energy policy agreements (2015-2022), the level of ambition has been further increased. Thus, the internal interest rate used for a profitable measure was increased by 2 %: ETS companies will have to implement all measures with a post-tax IRR of 12 %, ESR companies will have to implement all measures with a post-tax IRR of 10.5 %. In addition, some more general topics will be added to the new EBO: data collection on heat demand, waste heat potential and a climate component. The climate component varies according to the energy policy agreement (ETS/ESR). For example, ETS companies will have to prepare a climate roadmap to 2050 and the companies concerned by the ESR will have to carry out a climate audit. Finally, the target group is also

extended to all energy-intensive sites.

Energy efficiency policy framework for low energy intensive companies

Energy efficiency in businesses and SMEs is also targeted. The obligations imposed on low-energy establishments are determined on the basis of energy consumption on the one hand and the size of the establishment on the other.

Thus, establishments classified as SMEs with an annual final energy consumption of between 0,05 and 0.1 PJ and all establishments classified as large enterprises (regardless of their energy consumption) will have to carry out an energy audit. The measures resulting from this audit with an IRR above 13 % (after tax) must be implemented within three years.

Institutions classified as SMEs with energy consumption of between 0,02 and 0.05 PJ will have to have an energy balance and implement so-called no-regret measures. These are measures with a payback period of less than 3 years, which are defined by sector in a sectoral list of 'no-regret' measures. The measures are to be implemented during these four years.

The energy audit and energy balance must be available for the first time no later than 1 April 2023 and are valid for four years before they need to be updated.

To help businesses comply with this strengthened legislation, an accompanying instrument is being put in place:

sectoral federation agreements

(sectorfederatieovereenkomsten – SFO). Support under a SFO will take the form of a grant, which will be awarded through a tendering system. The aim is that SFOs support and help companies comply with the new regulations, but also encourage them to go beyond legal obligations. The call for applications for SFOs will be organised in 2023.

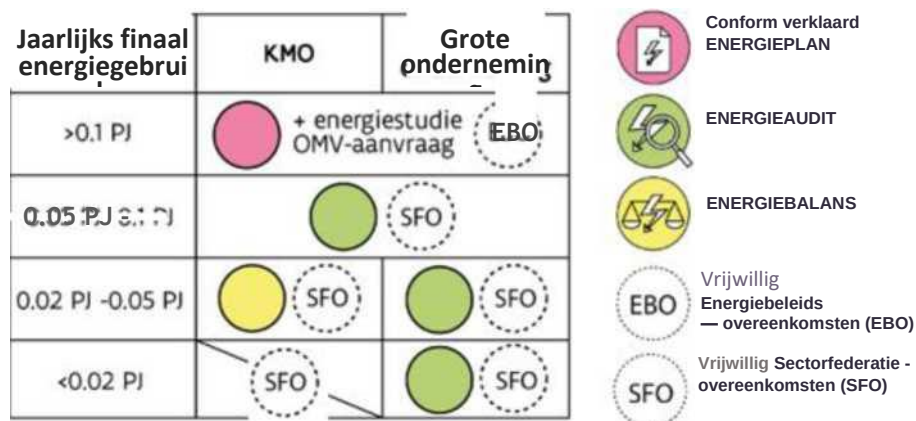


Figure 2-42 Energy efficiency policy framework for low energy intensive companies

Development of a climate plan

Large and/or energy-intensive companies are invited, through various instruments, to prepare a climate plan. This climate plan describes how the relevant site of the company will move to low-carbon activities in a climate-neutral Europe by 2050, taking into account the objectives of the Energy and Climate Plan for Flanders (2030). The climate plan can be prepared for the company or group as a whole.

There are several tools to develop a climate plan:

- Since 1 October 2022, large and/or energy-intensive companies have to attach a climate explanation when applying for support under a range of subsidy schemes. The explanation of this plan is considered as the criterion for the admissibility of the aid application.²⁵⁴ As regards strategic support for transformation, the climate plan obligation also applies to SMEs that are not energy-intensive.
- Aid to companies to offset indirect emission costs (CIE) is also subject to preparing a climate plan for low-carbon activities in a climate-neutral Europe by 2050.
- Institutions that have signed up to the Energy Policy Agreements 2023-2026 for ETS companies (EBO-VER) need to prepare a Climate Roadmap, in line with Annex 10 of the Energy Policy Agreement.²⁵⁵ Here, companies have the choice to establish their climate roadmap at site or geographic cluster level.

Greening of heat demand energy carriers

Focusing on greening industrial heat demand can make a major contribution to reducing energy emissions in the industry concerned by the ESR. Several avenues are followed:

1. First, the focus is on renewable heat production, including heat pumps and solar heat. Biogas and biomass (meeting the sustainability criteria of the Renewable Energy Directives), waste heat recovery can also play a role in achieving this heat production. In the long run, low-carbon hydrogen could also play a role. Finally, heat from geothermal energy also has a role to play in some regions in terms of future heat supply to industry.
2. Second, further electrification of industry can lead to emission reductions (direct and indirect).

The study 'Economische potentieelstudie vergroening van de warmtevraag van de niet-ETS industrie in Vlaanderen', commissioned by VLAIO and carried out by Technopolis and VITO (April 2022)²⁵⁶, identified interesting technologies such as industrial heat pumps, electric boilers, solar thermal, biomass boilers, waste heat use, district heating and thermal storage. In addition, it also quantified the investments needed to make the implementation of these technologies profitable for companies.

The total useful heat demand in Flanders in 2019, calculated from the public energy balance, was 222 PJ (62 TWh). The heat demand ESR (the main subject of the study) was estimated at 10.8 TWh. The study indicates that the entire low temperature heat demand (47 % of total heat demand) can be met by heat pumps, as there are few spatial constraints generally applicable to heat pumps. In a minimum scenario, the (technical) emission reduction potential is 1094 kton CO₂ equivalent per year. In a maximum scenario, this figure is 1843 kton CO₂ equivalent per year. In addition, the study also examines the potential of geothermal energy for low temperature heat demand, the potential of solar thermal, the potential of high temperature heating, and the potential of waste heat and district heating.

With the creation of a stimulus programme for the greening of heat demand in the ESR industry in Flanders, an action plan amounting to EUR 100 million for the period 2023-2024 (additional EUR 20 million, complemented by adjustments and a focus on funds from regular instruments) is being put in place.

This impulse programme contributes to the achievement of the targets set for the greening of energy carriers in the Flemish industry concerned by the ESR. The objective is to contribute to achieving an average annual emission reduction of around 89 kton CO₂ equivalent through the greening of energy carriers over the period 2023-2030.

In order to monitor the implementation of the impulse programme and, where necessary, to make timely

²⁵⁴ <https://www.vlaio.be/nl/subsidies-financiering/innovatiemandaten/voorwaarden/wat-is-een-klimaatplan-en-hoe-ga-ik-ermee-aan>

²⁵⁵ https://assets.vlaanderen.be/image/upload/v1668609729/Energiebeleidsovereenkomsten_2023-2026_-_bijlage_VER_hykv5.pdf

²⁵⁶ <https://www.vlaio.be/nl/media/2015>

adjustments, a working group on implementation has been set up with representatives of the relevant administrations in the Flemish Authority, federations, clusters and knowledge institutions. A call for pilot projects for the greening of energy carriers will be organised. To assess the progress of the impulse programme in relation to the objectives described above, the Implementation Working Group will define measurable performance indicators and report on them to key managers and cabinets of the Minister of Economy and the Minister of Energy.

The impulse programme was launched at the end of 2022. As part of its internal functioning and in dialogue with the working group on implementation, VLAIO will continuously adjust the measures on the basis of the results of the monitoring of energy use in the sectors concerned, with a particular focus on natural gas consumption and electricity consumption. To this end, at least the following parameters shall be monitored as part of the annual progress report on the VEKP programme:

1. Number of enterprises uniquely affected by the implementation of the VLAIO support measure.
2. Number of enterprises that received information, advice and coaching per year.
3. Number of companies affected by the ESR and reduction of emissions covered by the ESR with shares by (sub) sector.
4. CO₂ saved by (sub) sector (including the distinction between ESR and ETS) (compared to non-intervention emissions) with monitoring of the type of support and avoided CO₂ emissions.

Policy framework for F-gas reduction

Greenhouse gases F are a generic term for fluorinated greenhouse gases with a very high global warming potential value and therefore have a significant negative impact on total F-gas emissions in Flanders. HFCs (hydrofluorocarbons), PFK (perfluorocarbons) and SF₆ (sulphur hexafluoride).

In order to achieve a significant reduction of F-gases in the coming years, the strict European regulatory framework for F-gases 257 will be complemented by a Flemish policy framework on reduction.

257 Regulation (EU) No 517/2014 on greenhouse gases F;

fluorinated gases. Between 2018 and 2020, GHG emissions have already decreased by 1 Mton CO₂ equivalent. In order to continue this decline, it is necessary to focus, inter alia, on the following points:

- A transition to natural refrigerants, through economic support tools (including the ecological bonus +) and the promotion of training opportunities around natural refrigerants.
- Enter into company-level agreements with producers of fluorinated compounds when F-gases are released during the production phase (through an environmental or other permit).
- Empowering target groups through the conclusion of a Green Deal (including the Green Deal Klimaatvriendelijke Koeling with the distribution sector).
- Sensitisation of the appropriate recovery, disposal and collection of F-gases and F-gas installations.

Reduction of N₂O emissions from caprolactam production

Caprolactam production is an important source of nitrous oxide emissions in Flanders. The largest share of these emissions from caprolactam production comes from a single company. The reduction of N₂O emissions will be achieved by targeting policy measures at the point sources of this company.

- Through the development and monitoring of special conditions in the environmental permit, the company concerned is encouraged to take (mainly) additional end-of-pipe measures to reduce N₂O emissions. Consultations shall be held at regular intervals with the undertaking concerned in order to follow the predetermined timetable for taking action.
- Options for additional measures are under constant consideration, and the eco-bonus + is envisaged for new or very specific technologies. This can contribute to enhancing greenhouse gas reductions linked to a specific production process.

Limiting methane leakage in CHP gas engines, natural gas transmission and distribution

Leaks at gas engines in cogeneration, transport and distribution of natural gas release methane into the atmosphere. Due to the significant climate impact of methane emissions, avoiding methane leakage is one of the most cost-effective ways to reduce the impact of greenhouse gases.

Limiting methane leaks in natural gas cogeneration engines

At the time of combustion of natural gas and biogas in gas engines, a greater or lesser proportion of the gas (methane) is emitted without being burned with the combustion gases. Technical measures are available to limit these methane leaks, either through design improvements or by installing methane oxidation catalysts. A study was carried out to identify the most appropriate policy instruments and/or regulations 391

to reduce these methane leaks.²⁵⁸ Based on the results of this study, consultations with key stakeholders have been launched. This should lead to concrete measures. It has been found that similar initiatives have been taken and/or are ongoing in the Netherlands and Germany where emission limit values are the chosen or intended instrument. We align the Flemish initiatives accordingly.

Minimise methane emissions from natural gas transmission and distribution

In activities related to the transmission and distribution of natural gas, a (limited) part of natural gas escapes in the form of pure methane. Fluxys and Fluvius take measures to minimise these emissions. For the period 2021-2030, this package will be continued and further strengthened if necessary.

- Fluxys has developed an action plan to reduce methane emissions from its activities (MethER). With this action plan, Fluxys will reduce its methane emissions to a maximum of 46 kton CO₂ equivalent by 2025. This represents a significant reduction (of ± 0,1 Mton CO₂equivalent) compared to the period 2013-2017.
- The consultation with Fluvius continued. This should lead to a concrete action plan with additional measures.

VLAIO's accompanying policy instruments: financial support, low-threshold services and knowledge dissemination

The regular support instruments of VLAIO will continue to be used to support and direct businesses towards investments and choices of innovative technologies and production methods. Both financial aid and support and the dissemination of knowledge.

The green bonus + and the strategic green support remain important instruments to support the broad industrial transition in Flanders, i.e. improving energy efficiency and making the best green investments. The list of techniques accepted and eligible for support for ecology has been expanded and the percentages of support have also been revised. In addition, the GREEN call was launched specifically for greening energy carriers and improving energy efficiency. New instruments are being evaluated with a view to their continuation. A specific pilot call on the promotion and use of renewable energy is planned in 2023.

The provision of low-threshold accessible services (awareness raising, awareness, information, advice, networking) of VLAIO and its partners with a view to reaching the largest possible group and making it actively involved, in order to achieve the objectives of energy and climate policy. This involves disseminating knowledge about existing technologies, raising awareness and providing advice and coaching on the topic of energy and climate. VLAIO has a wide range of tools for this purpose and will continue to assess and strengthen the functioning of these tools in the future:

- Entrepreneurship contracts provide resources to a number of structural partners to organise low-threshold information and advice tasks on energy and climate, in addition to the usual business start-up and growth support.
- Energy and climate awareness through the Enterprise Network.
- Operation via high schools to give businesses the opportunity to familiarise with existing technologies.
- The e-shop for entrepreneurs provides information centralised, tailored to entrepreneurs by linking them to existing information channels (good practices, learner networks, local contact points, etc.).

²⁵⁸<https://www.energiesparen.be/onderzoek-naar-de-uitstoot-van-koolwaterstofverbindingen-bij-gasmotoren-in-vlaanderen>

- Collaboration between companies is encouraged: learning networks, collective approaches within business parks, local and/or smart energy communities, joint purchasing, etc.

In terms of training, the budget foreseen for the open call for training of entrepreneurs will be used, inter alia, to bring to the market an offer of additional training through public procurement (open offer, reprocessing for innovative solutions, specific mission for the training of heat pump installers in industry, possibly training for companies on establishing their energy balance).

Premium after audit

The **post-audit premium** may be claimed for energy saving investments made after an energy study/audit with an internal interest rate after tax of less than 13 %, since 1 January 2023, the post-audit premium has been reformed and increased.

Research, innovation and competitiveness measures

See chapter on research, innovation and competitiveness

Political framework for the Flemish industrial transition: Klimaatsprong Transition Programme

With the Flemish Industrial Transition Programme “Klimaatsprong”, a transversal transition framework will be put in place and deployed in the coming years. On 3 February 2023, **Ontwerpprogrammanota voor de periode 2022-2025** was in principle approved for the first time by the Flemish Government.²⁵⁹ For a detailed description of this measure, see Chapter VII – *Research, innovation and competitiveness*.

Region Walloon

The measures are described in section 3.2.4.

Brussels Capital Region

There are no measures in this sector as the Brussels-Capital Region is an urban region.

Agriculture

Initiatives in the agricultural sector by the various governments concerned aim to reduce greenhouse gas emissions by reducing energy emissions, improving agricultural practices such as reducing the use of mineral fertilisers, manure storage and spreading, recovering waste, preventing permanent pasture ploughing, halting soil degradation, among others.

Federal State

1. As part of the European Farm to Fork Strategy to strengthen the sustainability of the food system, and as a number of actions also have a direct or indirect climate impact, we actively support the various legislative actions and initiatives planned by the European Commission:

²⁵⁹ <https://beslissingenvlaamseregering.vlaanderen.be/document-view/63DB77EB2E929B312AB5C772>

- Revision of the EU Directive on the sustainable use of plant protection products;
 - Revision of the rules on feed additives (innovation);
 - The creation of a legal framework for *new breeding techniques* (innovation) in agriculture.
2. Fertilisers:
- In the short term, Europe is putting in place measures to support producers of mineral nitrogen.
- In the longer term, we support European projects to change the origin (biomethanisation, sustainable hydrogen production, etc.) of the raw materials needed for the production of mineral nitrogen in order to create more favourable conditions for the sustainable production of these nitrogen fertilisers.
3. Pesticides:
- The energy and climate impact of synthetic pesticides largely lies in their production from oil. However, there is no reason why pesticides should be more targeted than all other synthetic products such as biocides, pharmaceuticals, adhesives, detergents, plastics, etc.
- Specifically for plant protection products (pesticides), there is already a plan to reduce impacts on the environment in general, and on biodiversity in particular. The current draft plan already provides for specific fiscal action to link the selling price to the risk profile for humans, animals, plants and the environment.
4. Plant health:
- In the current federal action plan (*Towards a climate-resilient society in 2050 – Federal adaptation measures 2023-2026*), adaptation measure 4 is included under the heading ‘Biodiversity’.
 - The Beware and Note project aims to speed up the notification of new harmful species that threaten agriculture, forestry, ornamental crops and the environment. To this end, an online notification tool for specific quarantine pests has been developed. The results obtained will improve and extend the tool to other (new) or emerging bodies. Efforts will also be made to improve the visibility and awareness of the online tool and the danger posed by these pests. It is therefore a component of our PSL centred on “sanitary and phytosanitary policy” and our federal competences.

Flemish Region

Agriculture represents all the activities through which the land is used for the cultivation of plants and animal breeding, mainly for human consumption (basic food requirements). It also includes primary forms of production that do not directly use land. In the emission inventory and in this energy and climate plan, offshore fishing is also included in the agriculture sector. The agricultural sector is part of a multi-link agri-food chain, upstream and downstream of agricultural holdings.

This chapter focuses on the ‘agricultural production’ link in this agri-food chain. Neither the market demand side nor other supply-side agri-food links (ETS or ESR) are included in this chapter. This approach does not detract from the fact that an integral chain approach is the best way to make best use of the emission reduction potential in the area of food consumption and supply.

The policy lines for non-energy emissions in the agricultural sector and related measures are defined as follows:

- Livestock production
 - Reduction of enteric emissions (methane)
 - Emission reduction in manure storage and management (methane, nitrous oxide)

- Livestock management in the context of nutrient and greenhouse gas emissions
- Plant production
 - Reduction of emissions to soil through increased nitrogen efficiency (nitrous oxide)
 - Closing cycles/recovery of secondary flows
 - Improving energy efficiency in horticulture in greenhouses
 - Continuation of the sustainability of the fisheries sector
- Horizontal measures in agriculture
 - Financial incentives under the new common agricultural policy ○ Investment aid via the Vlaams Landbouwinvesteringsfonds
 - Collaboration at channel level
 - Integrated approach to research, innovation and knowledge dissemination

In November 2021, Belgium signed the Global Methane Pledge. Participating countries commit to contribute to a joint effort to reduce global methane emissions by at least 30 % by 2030 compared to 2020. The Flemish Government's vision note of 5 November 2021²⁶⁰ supports this objective, inter alia, in the context of agriculture. The measures contributing to this objective are those related to animal production, i.e. the reduction of enteric emissions, the reduction of emissions from manure storage and management, and livestock management.

Livestock production

Livestock farming is the main source of greenhouse gas emissions in the agricultural sector. Both changes in the size and composition of livestock and changes in greenhouse gas emissions per animal or per unit produced will contribute to achieving the climate objectives of the agricultural sector. The general trend towards moderating consumption of meat products (e.g. beef and pork) that has started over the last decade will continue. A decrease in demand leads to a decline in supply, as the demand side trend is observed not only in Belgium, but also across the Single Market or Customs Union. The European Commission expects that, on the supply side, pig and bovine herds will decrease by 2030.

Reduction of enteric emissions

Optimising food rations and food efficiency and improving farm management can reduce methane emissions per animal. Further progress is needed in areas such as food efficiency, food additives and cattle longevity.

Further research and implementation of these measures is part of the 'Enterische Emissies rundvee' agreement signed on 29 March 2019 by the Flemish Minister for the Environment and Planning of the Territory, Nature and Agriculture, the Department of Agriculture and Fisheries, ILVO and various partners in the beef and veal chain in the broad sense. Through their signature, the partners committed to achieving the enteric emissions target by 2030. Several measures have already been approved and implemented since the launch of the Convention (see <https://rundveeloket.be/CEER>). The climate assessment tool developed by VLAIO has also been accelerated, allowing farms to be assessed from a climate perspective, proposing climate measures and guiding farms in the implementation of these measures (see also chapter on integrated approach to research, innovation and knowledge transfer).

The Convention aims to deploy measures in the sector and is structured around five themes: (1) market developments in the cattle farming sector, (2) improved livestock and livestock management at farm level, (3) adequate management of animal feed, (4) possibilities for genetics and breeding and (5) monitoring

²⁶⁰Vision note to the Flemish Government on additional climate measures (VR 2021 0511 DOC.1237/1).

and assurance of measures. The focus will also be on research. From 2021 onwards, the implementation of the policy framework will be monitored annually and greenhouse gas reductions monitored every two years to verify whether the implementation of these bottom-up sectoral measures is taking place as planned by 2030.

The Bovine Emission Convention is an important policy measure to reduce enteric emissions. This convention should be adjusted to take account of the stricter reduction target for the agricultural sector in this VEKP. An update of the Convention is also appropriate in the context of the signature of the Global Methane Pledge. Indeed, as part of this pledge, Flanders has committed to contribute to a joint effort to reduce methane emissions by at least 30 % by 2030. Therefore, the evaluation of the Convention will start in 2024. Additional measures will be taken if, in 2025, the timetable for achieving the targets is not respected.

Reduction of emissions in manure storage and management

Small-scale fermentation of manure in pig and dairy farms can significantly reduce methane emissions from manure storage while producing biogas as a green fuel or feedstock for energy and other uses. This technique is already used in around fifty dairy farms (2020). The VLAIO la- Traject Pocket Power project has shown that the degree of reduction of methane emissions from conventional manure storage depends on the concept of manure storage in stables and that there is also significant technical potential in pig farms. If economically, functionally and technically feasible, this technique can be used in other dairy and pig farms. In addition, external storage of liquid manure can be stimulated. This leads not only to lower emissions from storage, but also to a better homogenisation of effluent so that it can be applied more correctly, which will also reduce emissions to soil. This can be combined with small-scale fermentation.

In addition to anaerobic fermentation, there are several other methods to reduce methane emissions from the storage and management of effluent, namely covering or forming a rind, composting (e.g. composting solid effluents and solid fraction after separation of liquid effluents), aerobic treatment, effluent separation and composting, effluent acidification and other application methods. To this end, we use good spreading advice and effluent analysis provided by certified advisors.

Emissions from manure storage and spreading (fertilisers) can also be avoided through Smart Farming and precision spreading.

An input-output balance at farm level makes it possible to better map the nutrient cycle of the holding and to manage losses where they occur. This is one of the aspects that will be taken into account in the development of climate scan under the VLAIO Klimrek project.

In early 2021, the Begeleidingsdienst voor Betere Bodem- en Waterkwaliteit (B3W) started working on behalf of the Flemish Land Society (Vlaamse Landmaatschappij – VLM). B3W supports agricultural and horticultural farms in their move towards sustainable nutrient management and soil maintenance, which should also reduce methane and nitrous oxide emissions from fertilised agricultural soils.

Livestock management in the context of nutrient and greenhouse gas emissions

The Mestactieplan (MAP 6 – Fertilisers Action Plan) covers the period 2019-2022. MAP 7 (until 2026) will be developed on the basis of the evaluation of MAP 6 and the evolution of water quality; it will be aligned with the river basin management plans approved for the years 2022 and 2027. As the outline of MAP 7 is not yet known, it is not yet possible to calculate greenhouse gas emissions.

The Programmatische Aanpak Stikstof (PAS) dossier (Programmatic Approach to Nitrogen Deposition

Control) includes a broad set of measures that should also have an impact on greenhouse gas emissions in the agricultural sector. Examples include:

- By 2030, the size of the pig population will be reduced by 30 %. The SAP measures will contribute in part to this. In addition, a targeted call will be launched for pig farms with an impact on the nearby Habitats Directive Special Protection Areas (SPA H).
- Cessation of livestock farming activities that generate the highest emissions with an impact label > 50 %.
- Voluntary cessation scheme for holdings with an impact label of > 5 %.
- The decrease in livestock numbers leads to lower emission allowances nutritional elements. This measure provides for the removal of dormant NER 41 million, the cessation of so-called 'growth through fertiliser treatment' and the permanent removal of 25 % of NER in the reform of treatments (with limited exceptions), including permanent abolition, from the NER market.

The adjustments made under the SAP should put an end to livestock growth. This also means that greenhouse gas emissions will decrease. The adjustments will take effect once the political decisions have been transposed into the regulations.

Plant production

Reduction of soil emissions through increased nitrogen efficiency

The current nitrogen losses in the agricultural sector have a direct and indirect impact on the quality of the environment (greenhouse gases, acidification, over-fertilisation).

Nitrogen emissions to air and water from livestock and plant production and biomass processing can be reduced²⁶¹ by targeted measures. The Seventh Action Programme for the implementation of the Nitrates Directive (MAP 7, duration 2023-2026) is under preparation and will replace MAP 6. MAP 7 will be based in particular on the agreement on the basic principles of MAP 7 concluded between environmental and agricultural organisations in March 2023, which provides, inter alia, for the application of the following elements:

- Precision farming: the right dosage, at the right time and in the right place
- Immediate incorporation of manure;
- Reducing the use of artificial fertilisers by encouraging crop rotations suitable and the use of artificial fertiliser substitutes;
- Transition from nutrient removal to nutrient recovery and reduction of nitrogen losses.

Further practical research will integrate new knowledge and support the choice of the most effective measures and instruments.

Closing cycles/recovery of secondary flows

Agriculture already plays an important role in the exploitation and valorisation of secondary flows. This

²⁶¹Begroting van stikstof en fosforstromen in Vlaanderen (Estimation of nitrogen and phosphorus flows in Flanders); MIRA Research Report 2013

role will be further strengthened and expanded by 2030.

For example, fermentation represents an important valorisation of manure and certain plant residues available by converting them into green energy (biogas, biomethane) and digestate. In addition, researchers investigate to what extent nutrients can be recovered from manure treatment and from residual streams. Some examples are RENURE, the use of compost... Plant and animal residual flows (e.g. meat-and-bone meal) will also be used to a maximum extent in the agricultural and horticultural sector as feed, for the benefit of soil structure, soil fertility, as an energy source or for other applications.

Good collaboration between producers and users of side-streams and appropriate regulation allowing the use of products derived from these secondary streams are of paramount importance in this respect.

Improving energy efficiency in horticulture in greenhouses

Absolute consumption of carbon-intensive petroleum products (i.e. fuel oil in particular) in glasshouse horticulture has slightly decreased over the last five years, and quite strongly compared to the use of natural gas, biomass, heat pumps and waste heat recovery. A sharp decrease in energy consumption can be expected, despite a temporarily higher share of fuel oil and coal in 2022 and 2023 compared to natural gas consumption, due to high gas prices.

Natural gas consumption has increased sharply in recent years due to combined heat and power production on farms. This trend will not continue as the switch from gas and fuel oil boilers to cogeneration has been largely achieved in the glasshouse horticulture sector. In the agricultural sector, cogeneration is an energy-efficient technology for heat production. In order to discourage the use of fossil fuels, installations put into operation since 2023 can no longer benefit from the current support in the form of certificates for cogeneration savings achieved by new and substantially modified installations. For new or substantially modified installations from 2013, the aid is already limited to 10 years. The latest certificates for combined heat and power (CHP) from fossil fuels will be issued by the end of 2035. This phase-out support will reduce the consumption of natural gas by CHP plants. The next step is to reduce CO₂ emissions by moving from natural gas to biogas and other heat sources.

Investments in energy saving techniques (insulation, heat storage, heat recovery, frequency control of pumps and fans, LED lighting, pre-cooling, etc.), green heat and renewable energy (solar water heaters, heat pumps, sustainable and local use of biomass, initiators, etc.) are more widely supported by the Flemish Agricultural Investment Fund (Vlaams Landbouwinvesteringsfonds – VLIF) than in the context of the revision of the new Common Agricultural Policy.

In glasshouse horticulture, a sub-sector that accounts for a significant share of primary energy consumption, further efforts to reduce greenhouse gases must be made by 2030. Investments in new technologies are needed to further decouple energy consumption from production volume. This sector is strongly affected by the current energy crisis and will see support for CHP certificates phased out in the coming years. In 2022, the sector launched a participatory process to develop a transition path in the short, medium and long term. The trajectory is based on Trias Energetica: energy saving (screen technology, dehumidification, etc.), use of renewable energy sources (biogas, biomass, heat pumps, electrification, solar, wind, etc.) and efficient use of fuels (fossil) (e.g. symbiosis with other sectors, energy storage systems, etc.). Several scenarios are envisaged in the short and medium term, based on the technologies mentioned above and in addition to the impact of phasing out the CEPP. The Flemish Agricultural Investment Fund (VLIF) list of technologies has already been adapted to support these investments.

In the meantime, the target group of the new EBO (2023-2026) has been expanded under the 2019-2024 Government Agreement to include all energy-intensive companies, meaning that energy-intensive

horticulture companies (greenhouse) are now included in the target group. In addition, less energy-intensive agricultural and horticultural businesses will also be subject to obligations through strengthened legislation for low energy intensive businesses, the preparation of an energy audit or energy balance and the mandatory implementation of cost-effective or no-regret measures.

Further sustainability of the fisheries sector

Environment and climate are key thematic objectives of both the European Maritime and Fisheries Fund (EMFF; 2014-2020) and the European Maritime, Fisheries and Aquaculture Fund (EMFAF, 2021-2027). Marine fisheries and aquaculture are developing various measures to protect the environment and transition to a low-carbon economy, including:

- Investments on board fishing vessels which also lead to energy efficiency (LED lighting, on-board insulation, etc.).
- Improvements in fishing gear with a view to greater selectivity, reduced traction force and reduced seabed disturbance.
- Optimisation of engines, generators and other propulsion mechanisms on the fishing vessel.
- The development of sustainable and integrated farming systems in aquaculture (at sea and on land) and innovative aquaculture research (e.g. algae cultivation), which can have a positive effect on the climate. Even if this result is not to be directly credited to Flanders' ESR climate score, this could further reduce our overall climate impact.

In collaboration with ILVO, the Belgian fishing fleet has developed a sustainability label (Valduvis) at the level of fishing vessels. In addition, research efforts are being made to improve general knowledge and the protection of the marine aquatic environment.

All this is in line with the objectives of Europe's Common Fisheries Policy.

For the period 2021-2025, a new Convention "Op koers naar de leurzaamheid" commits to actively seek alternative (e.g. passive) fishing techniques and increase the energy efficiency of fishing vessels.)

Horizontal measures

The climate challenge in the agricultural sector requires a targeted deployment of resources (financial, human, knowledge and research, collaborative relationships, etc.) of different governments and other societal actors (businesses, banks, citizens, etc.) according to the climate objectives set. Targeted governance from design to implementation, monitoring and adjustment of these instruments is essential. To this end, measures are being taken within the framework of the CAP, collaboration on new income models and research, innovation and knowledge dissemination. Other climate measures can be included in the Flemish environment, effluent treatment and energy policy.

Financial incentives under the new Common Agricultural Policy

The new Common Agricultural Policy (CAP) started in 2023. The fight against climate change is one of the specific objectives of the CAP. Under the European CAP framework, Flanders has a strategic plan for the CAP (2023-2027) (approved at European level in December 2022 and by the Flemish Government in March 2023). In this plan, the climate is included in the power lines and we provide the necessary measures and instruments to reduce greenhouse gas emissions in the agricultural sector.

On the one hand, for all area-related and animal-related CAP measures, farmers must comply with cross-compliance, which consists of standards (good agricultural and environmental condition (GAEC)) and

management requirements. In this way, the provision of income support is linked as far as possible, and in a result-oriented manner, to the provision of public services and to environmental performance (climate, environment, public health, animal and plant health and animal welfare). Conditionality, eco-schemes, agri-environment-climate methods (AECM) and management contracts are the basic pillars of the new green architecture. Eco-schemes are commitments of one year that a farmer can make to meet a biodiversity or environmental and climate target. The AECMs are multiannual.

The following instruments contribute to soil carbon conservation: (see also LULUCF section)

- GAEC around the preservation of permanent grassland.
- GAEC on the protection of wetlands and peatlands.
- GAEC recommends the maintenance of organic matter in soil.

The following instruments contribute to increasing carbon farming (see also LULUCF):

- The eco-scheme increases soil organic carbon content.
- The eco-scheme preservation of multiannual grassland.
- AECMs: from temporary grassland to permanent grassland.
- The management contract for the restoration, development and maintenance of woody landscape features.
- AECM forestry.
- Support for non-productive environmental and climate investments.

The following instruments contribute to the limitation of emissions associated with soil:

- Eco-scheme precision farming.
- Eco-scheme grassland managed in a way ecological.
- Eco-scheme buffer strips.
- Eco-scheme and MAEC on pursuit and the conversion of organic farming.
- AECMs for climate-friendly or biodiversity-friendly crops.
- The various management contracts.
- Support for non-productive environmental and climate investments.

The eco-scheme for feed management aims to reduce enteric methane emissions from cattle' digestive processes through appropriate feed management. This measure implements the enteric emissions of bovine animals.

There are also interventions that contribute to the protein transition by encouraging local protein production. These are the eco-scheme and AECMs for environmentally-friendly and biodiversity-friendly and/or climate resilient culture. Furthermore, the conditions for access to income support for sustainable cattle farming encourage farmers to produce their own proteins.

An aid scheme for the sustainable rearing of suckler cows will be introduced from 2023. This support shall be subject to conditions depending on the sustainable management of grassland, own production and diversification of feed. Therefore, each participating holding will have to make efforts in terms of sustainable grassland management and/or own production and diversification of coarse fodder, as well as the preservation of permanent grassland on the holding and the compulsory grassland of animals. Therefore, at least part of the area will be managed more extensively.

Collaboration on climate objectives is also foreseen by the CAP. More information can be found in the relevant chapters.

Investment support through the Flemish Agricultural Investment Fund (Vlaams Landbouwinvesteringsfonds)

In addition, under the new CAP, the Flemish Agricultural Investment Fund (VLIF) is undergoing an in-depth reform to become a future-oriented entrepreneurial fund. Investment policy focuses on innovative, environmentally-friendly and climate-friendly production. The selection method applied to all aid applications shall be adjusted in such a way that the investments that contribute most to the reduction of pressure on the environment and climate change mitigation (the highest reduction of greenhouse gas emissions per euro of investment support) and adaptation to these changes are ranked highest. The effectiveness of measures, progress and financial implementation of the new VLIF will be fully monitored.

Collaboration within the chain

To ensure a transition in the agri-food chain, close collaboration between all partners in the chain is essential.

Flemish agriculture and horticulture are the backbone of a much wider agri-food chain that spans several links, ranging from the supply of raw materials, materials and machinery to the farmer, processing and sale to the consumer. By extension, knowledge institutions, credit institutions, education, interest groups, societal organisations, authorities, etc. also play an essential role. A crucial success factor in the transition is a proper market-conform remuneration for efforts, innovations and investments to reduce the carbon footprint of food products.

Horizontal and vertical collaboration within the chain is needed to better align supply with (expected) demand. This leads to better exploitation of market opportunities, reduced food losses, risk sharing, etc. Some forms of collaboration and agreements can lead to new income models and other climate finance mechanisms.

The new CAP supports collaboration within the chain as follows:

- Through the Operational Programmes for Fruit and Vegetables.
- One-off support (VLIF) to individual farms to start up or convert their activities to a renewed and forward-looking business strategy, such as income diversification, differentiation, enlargement, new functions and/or change/conversion of farm functions.
- collaboration under the aegis of the EIP Operational Groups, which can have a primarily ecological purpose, including climate change mitigation.

Integrated approach to research, innovation and knowledge dissemination

It is important that farmers have the necessary knowledge and know-how to adapt their operational management and make it more climate-friendly. This is why the focus is on supporting, raising awareness and informing farmers about the interaction between agriculture and climate change, the role that agriculture can play in combating climate change, agro-ecological principles, existing climate (support) measures, the effect on other environmental aspects and a cost-benefit analysis of climate-friendly farming practices.

Research resources will mainly be used to support further transformation and innovation in the agricultural sector, including in the areas of profitability, environmental pressures, climate, agroecology, short chain,

biodiversity and changes of scale.

ILVO's Expertisecentrum Landbouw & Klimaat (Elk) can play an important role in an integrated vision of climate research, in collaboration with other knowledge institutions. Over the years, ILVO-ELK has expanded its activities. Research is structured around two axes: climate change adaptation and mitigation. Many measures act simultaneously on both pillars and are also mainly used to increase the sustainability of the agricultural sector. This provides policy makers and the sector with advice and support on climate measures and tools. In 2019, VLAIO launched the "Klimrek" journey. In this context, an analysis of the climate specific to the sector will be developed (dairy cattle, pig farming, arable crops) on the basis of the LCA, which clarifies the impact of a business on the climate. On this basis, feasible climate measures are introduced on farms, implying a cost-benefit analysis. Farmers are then accompanied and monitored individually or in groups. For dairy farming, accelerated deployment started in 2022 (Klimrek plus).

In addition, ILVO-ELK plays a supporting role in the Bovine Emission Convention. In addition to research on measures to reduce enteric emissions in livestock farming, ILVO plays a central role in the Scientific Committee responsible for determining the reduction rates of these measures. These measures and the corresponding reduction rates are included in the Klimrek project (dairy farming sector).

For soil stored carbon, research is carried out on emissions (as part of carbon hotspot drainage and wetland farming opportunities), on the impact of soil management measures on soil organic matter and trade-offs with N2O emissions and nitrate leaching, on carbon storage potential, on monitoring soil carbon sequestration through remote sensing. The Klimrek project is supported with regard to carbon sequestration.

Further efforts are being made to ensure the easily accessible dissemination of technologies and knowledge to ensure the introduction of energy measures in the sector. Examples include energy scans that concretely translate Trias Energetica's principles at company level, the Enerpedia support project and the Kratos business advisory system that offers accessible energy scans, measures for new energy technologies and more detailed energy advice for agricultural and horticultural companies.

Monitoring, insurance and research on adjusted emission factors.

Currently, IPCC emission factors based on a certain tier methodology are defined for agricultural production systems and techniques.

Agricultural production systems differ from region to region, as well as the effectiveness of mitigation measures that have an impact on greenhouse gas intensity.

For biologically controlled (non-energy) emissions, the emission factors set now depend heavily on physical environmental factors such as temperature, humidity, oxygen content and agricultural practices, etc.

Structural research is needed to differentiate emission factors in a scientifically sound and integrated way according to the search for mitigation measures, production conditions and environmental factors.

Region Walloon

For the agriculture sector, PACE can rely on several Walloon strategies:

- Wallonia's **CAP Strategic Plan** (Common Agricultural Policy) for 2023. This plan, which was implemented from 2023, includes new measures (in particular: enhanced cross-compliance, coupled support for protein crops, eco-schemes, 'Sol' AECM, etc.) which will enhance the

sustainability of agriculture and in particular the improvement of the environmental footprint, in particular by promoting the reduction of the use of nitrogen inputs. It also supports the development of organic farming and the fodder autonomy of livestock farms.

- **The Walloon Recovery Plan** includes numerous measures for the ecological, climate and energy transition of agriculture, as well as relocation of the food system.
- **The Strategic Plan for the Development of Organic Farming** (PSDAB), adopted by the Walloon Government in June 2021, includes a vision and detailed actions in the objective of reaching 30 % of BIO agricultural land in 2030.

Axis 1: Develop tools to reduce on-farm energy consumption, GHG and NH3 emissions

Tools exist in Wallonia for farms to assess and reduce their energy consumption and greenhouse gas and ammonia emissions. These tools are used by farmers on a voluntary basis. This type of tool makes it possible to assess both energy consumption emissions and agricultural practices in order to have an integrated impact assessment of the envisaged changes. The carbon balance approach also covers indirect emissions, the possible decrease of which will then be reflected in other sectors of the inventory. The dissemination and use of tools through existing advisory or mentoring networks for the sector is essential to accompany and encourage more farmers in reducing their energy consumption, GHG emissions and NH3.

- Deploy and promote farm-wide energy, greenhouse gas and NH3 balances (PACE measure 3.6.1) With this in mind, **the DECIDE tool**, developed by the Walloon Centre for Agricultural Research in collaboration with AwAC,²⁶² is particularly useful in that it makes it possible to draw up energy, greenhouse gases and NH₃ balances at farm level by means of life cycle analyses. Specific recommendations can be discussed with farm advisors in order to optimise the use of inputs (energy and other), limit losses (economic impact) and reduce the environmental impact of farm activities.

The DECIDE tool is already deployed in Wallonia and is currently being improved. Its finalisation and ownership by a larger number will be the subject of specific actions under this plan:

412	Making accessible and supporting farmers' adherence to DECIDE	Ongoing	PWEC
413	Finalise the DECIDE tool in order to have an ever more accurate, comprehensive tool adapted to the Walloon context	Ongoing	PRW 206
414	Analyse the introduction of a system of remuneration for positive externalities of farms	Ongoing	PRW 207

These actions are based on projects 206, 207, 208 and 209 of the Walloon Recovery Plan (PRW), which together constitute a comprehensive agri-environmental action plan aimed at directing farmers towards agro-ecological practices that are virtuous, inter alia, for the climate. The budget available by the government for these projects 206, 207, 208 and 209 amounts to EUR 6.000.000.

The implementation of project 206 aims to complement the DECIDE tool, which quantifies the environmental impacts of agricultural holdings, with a view to carrying out comprehensive audits integrating the three pillars of sustainability while taking into account the specificities of Walloon agriculture. Project 207 will in particular explore the feasibility and relevance of setting up a system of

²⁶² See <http://decide.cra.wallonie.be/fr>

remuneration/compensation of farmers for environmental services rendered, carbon sequestration, reduction of greenhouse gas emissions and NH₃ emissions. Based, inter alia, on the results of projects 206 and 207, a network of farms has been set up (project 208) and applied action research in agro-ecology (project 209). The results of the research activities will in turn feed into projects 206 and 207 and the wider dissemination of good practices.

Axis 2: Developing the use of biomethanisation in the agricultural sector

In general, **biomethanisation** is a technology that enables organic matter to be transformed into methane gas and fertilisers. On the farm, these organic materials are available at all stages of the use of the material; both of animal and plant origin. The particular interest also stems from the quality of the fertiliser produced by this process: the nitrogen that allows fertilisation of the soil is partially mineralised by the process. At farm level, biomethanisation can be carried out from different fermentable waste or by-products (manure, slurry, purin, organic household waste, energy plants) in order to produce biogas consisting mainly of methane which, depending on the farm's needs, can be recovered in different ways.

In addition to the granting of green certificates, this type of installation is the subject of a number of **regional aid** (aid for the rational use of energy, investment aid, specific aid in the agricultural sector).²⁶³

The **benefits of biomethanisation** are manifold:

- Production of thermal and/or electrical energy (direct combustion in a boiler production of heat, production of electricity or cogeneration of electricity and heat).
- Reduction in greenhouse gas emissions (CO₂, CH₄).
- Economic solution for the treatment of organic waste with the possibility of agricultural recovery.
- Contribution to fertiliser market needs and to a lesser extent organic certified amendments.
- Agricultural diversification and valorisation and additional source of income for farmers.
- Possibility of injection of biogas into the distribution network, allowing for its relocation.
- Possibility of using biomethane in gas fuelled vehicles (CNG vehicles).

However, attention should be paid to the following:

- Risk of competition with agricultural feeder functions. For example, drifts are observed in some neighbouring countries, diverting the system with a view to economic optimisation of digesters by introducing maize grown on large areas for this sole purpose. This would move from a manure recovery solution to a possible development of new sources of emissions linked to the development of maize cultivation (crop that requires significant fertilisation and weeding). Attention should also be paid to competition with the fodder function as regards intermediate crops and co-products such as beet pulp or potato waste. In addition, the Lansik scale and the priority of bio-waste management methods should be kept in mind. In this connection, the introduction of the CarboneFast Decision Support Tool (fiche 117 of the PRW) should help farmers choose the best ways of managing their carbon (and thus manure + crop residues).
- Risk of an increase in the price of agricultural land.

²⁶³See "Practical Guide to Design for Management of its Biomethanisation Unit | Valbiom – Biomass Valorisation", 2019

- Fuites in the event that the infrastructure is not sealed, resulting in a discharge of CH₄.
- Ammonia emission risks. The conditions for the production of biomethane lead to a massive transformation of the nitrogen contained in the input into ammonia, which will end up essentially in digestate. Measures should be taken to prevent its release into the atmosphere.

- Regulating the development of biomethanisation (PACE measure 3.6.2)

It is therefore essential to regulate the development of biomethanisation in order to ensure that there is no competition with food crops and that the feeding function of farms is maintained. In this spirit, a regulatory framework will be proposed by Valbiom in consultation with agricultural organisations. The status of intermediate crops will have to be well defined. In addition, action should be taken within the framework set out in Annex IX to the RED II Directive.

On the other hand, the **Valbiom** asbl plays an important role in mentoring and advising companies (both agricultural and non-agricultural) to carry out biomethanisation projects.

The framework agreement between the Region and Valbiom, covering the period from July 2022 to June 2025, confers on the asbl the following tasks: “Supporting project promoters from design to completion” and “Beating the sector’s reference information centre and providing high-quality scientific expertise”.

416	Establish a framework for the rational development of biomethanisation by avoiding potential abuses.	Planned	PWEC PRW 205
764	Valbiom mentoring and advice for biomethanisation projects	Ongoing	

- Financially support the development of biomethanisation. Producing quality fertiliser and renewable energy (PACE measure 3.6.3)

According to Valbiom, in 2020 there were 54 units of biomethanisation in Wallonia. Of these, 18 are agricultural, 15 are agricultural micro-biomethanisations, 2 treat organic waste from household waste (harvesting via door-to-door), 7 are attached to agri-food companies and treat process water, 8 are Technical Enrichment Centres (TECs) from which the biogas produced is recovered and 4 treat sewage treatment plant sludge (STEP).

This plan aims to **financially support the larger deployment** of biomethanisation units by 2030:

415	Support all actors, including farmers, in setting up a digester (biomethanisation)	Ongoing	PWEC, PAC 2023-2027 (aid to investment) PRW 205

This action is **in line with and aims to strengthen several ongoing initiatives**. In the DPR, the Government proposes to encourage biomethanisation for better waste management by supporting farmers producing energy significantly who can feed into a local network (village, hamlet, company). In the 2023-2027 CAP Strategic Plan, investment aid makes it possible, in particular, to finance energy-saving and thermal insulation equipment and biomethanisation units. Furthermore, project 205 of the PRW foresees support for diversification through renewable energy. Energy production, with a view to a circular economy and an optimal use of resources, is a useful diversification of farmers’ activities. This project aims to strengthen

energy sovereignty by ensuring stable and diversified incomes for farmers through calls for projects and grants. Pre-feasibility studies and the launch of calls for biomethanisation projects are envisaged.

Axis 3: Reducing inputs

Reducing nitrogen inputs is one of the major levers to achieve the GHG reduction targets of the agricultural sector as described in Chapter 2.

- Promoting organic farming (PACE measure 3.6.4)

While the European Green Deal sets a target of 25 % organic agricultural land by 2030, Wallonia wants to go beyond and **reach 30 % as set out** in the PRD. In 2020, the organic area in Wallonia was 12 %.

Following a first regional plan to support the development of organic farming, which covered the period 2013-2020, in June 2021 Wallonia adopted a **new Plan for the Development of Organic Production in Wallonia (PSDAB)** by 2030. It aims to increase regional supply and demand for organic products, while ensuring a balance between them in order to maximise the benefits for the Region.

The **strategic part** of the plan sets ambitious development targets for the organic sector by 2030, including: 30 % of the utilised agricultural area cultivated according to organic rules, 4.720 farms under organic control, 1.490 enterprises processing agricultural products under organic control and 14.9 % of all food products purchased from organic.

The **operational part** of the plan sets out the actions to be implemented over an initial period of five years (2021-2025) to achieve these objectives. 32 of these are grouped according to the following nine policy levers:

1. Monitoring and Planning
2. Legislation
3. Information for tenderers
4. Support for operators
5. Financial aid to operators
6. Education and vocational training
7. Promotion of organic products and operators
8. Research
9. Innovation

The plan has been drawn up and is implemented using a participatory approach in consultation with representatives of the organic sector in Wallonia. It also involves various institutional structures and associative actors in their respective fields of activity: SPW ARNE, SPW EER, APAQ-W, CRA-W, Biowallonie, College of Producers, Pilot Centres, etc.

Like PACE, PSDAB is structured towards a 2030 target. This BIO Plan, with its detailed vision and actions, is an important contribution to Wallonia's ecological and climate transition.

In addition to the PSDAB, the 2023-2027 CAP Strategic Plan provides for an increase in support for organic farming (compared to the 2014-2020 PwDR, extended to 2022) with the aim of contributing to the improvement of geochemical cycles.

The following actions will therefore be particularly monitored under this plan:

660	Put in carried out the Plan strategic from	Ongoing	PSDAB
417	Support for conversion to organic farming (premium on <i>conversion</i>)	Ongoing	PWEC, Plan strategic PAC 2023-2027264
418	Support the maintenance of organic farming (<i>retention</i> premium)	Ongoing	PWEC, Strategic Plan CAP 2023-2027

- Develop more extensive livestock farming with greater food autonomy (PACE measure 3.6.5)

A second major lever to achieve the objectives described in Chapter 2 is the development of an **agricultural model with more extensive livestock farming**.

This perspective has already been initiated through various instruments. In the 2023 CAP Strategic Plan, the AECM 'Farragère Autonomy' and the Eco-Regime 'Permanent Prairie' aim to preserve permanent grassland, to enhance the contribution of livestock farmers who have reasonable livestock costs and to encourage those with high costs to reduce them. PSDAB also promotes extensive livestock farming. Indeed, BIO farmers are required to comply with a maximum burden of 2,0 LU/ha.

The following actions will therefore be particularly monitored under this plan:

421	Support farmers with a low cattle load (Eco-scheme "Permanent Prairie") and MAEC "Based Autonomy"	Ongoing	CAP Strategic Plan 2023-2027
426	Supporting farmers to reduce inputs on grasslands (MAEC 'High Organic Value Prairies and Natural Prairie')	Ongoing	CAP Strategic Plan 2023-2027

- Encouraging less input farming (PACE measure 3.6.6) Other practices aimed at voluntary input reduction, and in particular the reduction of organic or mineral nitrogen inputs directly on agricultural parcels, are also to be mobilised to meet the objectives described in Chapter 2.

These are already agreed under the 2023-2027 CAP Strategic Plan and will be monitored in particular under this plan:

- **The ‘Long cover’ eco-scheme** encourages a practice (land cover) until 15 February), which allows nitrogen fertilisation of agricultural parcels to be reduced.
- **The eco-scheme ‘environmentally friendly crops’** concerns the promotion of crops classified as favourable to the environment due to their intrinsic qualities through the increase in the area cultivated in Wallonia. These are crops with little input demand. The favourable cultures eco-scheme supports, in particular, forage legumes, a botanical family that sets nitrogen from the air, reducing nitrogen fertilisation needs.
- **Coupled support for protein crops** makes it possible to reduce nitrogen fertilisation through the fixing of nitrogen from the air by the Rhizobium by this botanical family.
- **“Natura 2000 in agriculture”** concerns limiting inputs on Natura 2000 areas and limiting the use of grasslands, including livestock loads limiting GHG emissions.

428	Supporting farmers to reduce inputs on Natura 2000 areas: Natura 2000 in agriculture	Ongoing	PAC 23-27 (POL) AGRI Municipality)
429	Support farmers to voluntarily reduce inputs on certain agricultural parcels: Eco-scheme “Long coverage”	Ongoing	PAC 23-27 (POL) AGRI Municipality)
430	Support farmers to reduce tillage, favour legumes and voluntarily reduce inputs: Eco-scheme ‘Crops favorable to the environment’	Ongoing	PAC 23-27 (POL) AGRI Municipality)
431	Supporting farmers for voluntary crops with low nitrogen inputs: Coupled support for protein crops	Ongoing	PAC 23-27 (POL) AGRI Municipality)

Axis 4: Reducing agricultural ammonia emissions

The application of fertilisers, organic or synthetic, is a source of nitrogen emissions (in the form of N_2O and NH_3). In order to limit these emissions, different techniques exist. These may refer to spreading equipment (e.g. slurry injectors reduce losses and are therefore more efficient than conventional nozzles) or spreading techniques (e.g. immediate manure burial or within 24 hours by ploughing). A farm, animal housing type and storage facilities influence the level of air emissions. The housing will influence the volume of manure produced, which will ultimately influence the level of nitrogen emissions. Since 1^{January} 2016, each farmer must be in possession of a certificate of conformity of manure storage infrastructure.

- Regulating the application and/or storage of livestock manure (measure 3.6.7 of PACE). First, this strategic objective concerns incentives for farmers to **manage nitrogen inputs in an optimal way**. The Sustainable Nitrogen Management Programme (PGDA) in agriculture is 411

initially designed to protect water resources from nitrate pollution, but good nitrogen management reduces inputs and therefore has a direct impact on N₂O emissions, which account for 44 % of agricultural emissions, as well as on NH₃ emissions, of which the agricultural sector is the main source of emissions (93 %).

The Nitrawal asbl was set up in 2002 as part of the PGDA and, now renamed 'Protect'Eau', it brings together fifteen members, located in 4 regional action centres and a coordination centre. Protect'Eau carries out numerous awareness-raising activities (meeting, demonstrations, information sheets made available, etc.) in the areas of **rational fertilisation**, management of farm fertilisers (checking the connection to the ground, land application contracts, upgrading storage facilities) and crop residues and the establishment of intermediate nitrate traps (CIPAN). On the other hand, reasoned fertilisation advice is also provided by the laboratories of the Requasud network. The measure shall also consist of improving manure storage conditions and infrastructure through the following actions:

433	Comply with manure storage conditions prior to application	In course	EU obligation (Nitrates Directive)

Under the **EU rules** on the CAP, SMRs take over legal obligations to which farmers are otherwise subject. Farmers who do not comply with SMRs suffer a decrease in their CAP support (= cross-compliance principle). For example, the PGDA is integrated into SMR 2.

- Improve fertiliser application practices (PACE measure 3.6.8)

In the same vein, the aim is to improve fertiliser application methods to reduce nitrogen emissions, in particular through the use of pendillard and injections.

435	Supporting farmers in the purchase of agricultural equipment	Ongoing	Current Pace (axe1 A03) Plan strategic PAC 2023-2027: Aid to investment

Axis 5: Reducing enteric methane emissions

- Reduce enteric methane emissions (PACE measure 3.6.9)

Enteric methane is a main source of methane in agriculture. The objective of this measure is to act at the level of cattle farms to reduce enteric methane emissions per animal. Various policy levers are provided for in this regard: on the one hand, to make accessible and facilitate the implementation of the results of already completed research and, on the other hand, to deepen the results of research carried out and explore new avenues for scientific research.

- Relevant research areas and state of play of research:

Research is carried out at different levels to develop quantification tools, define levers and implement solutions to reduce methane emissions (CH₄) linked to cattle farming. Namely, at the level of the animal as such, its diet and production systems, while still paying close attention to the potential impact of the measures put in place on other sources of greenhouse gases.

Non-exhaustive examples include the following most promising options:

- Development of readily applicable indirect phenotyping tools from CH₄ (proxies).

- Supplementary research on tools for prediction of individual CH₄ emissions by dairy cows or not from the near or medium infrared spectrum of milk or material to consolidate the use, robustness and accuracy of tools and their use in other herd management systems or on other breeds²⁶⁵
- Optimisation of cattle feed while also aiming at the objectives of high food autonomy, both at farm level, the Walloon Region, the geographical area of north-west Europe and the European Union²⁶⁶
- In addition to reducing enteric methane emissions on an individual scale, studies have also been carried out to assess the impact of innovative beef production systems in order to improve efficiency and reduce environmental impacts, including impacts associated with greenhouse gas emissions. Pathways to change have been identified, leading in particular to a reduction in the emission of CH₄ per kg of meat produced (Nota Bene: the emission criterion per kg of meat is useful, but it must be accompanied by an analysis of emissions per hectare). However, the uptake of innovations may be limited by bottlenecks, particularly at sector level. Research into the co-construction and uptake of low-emission systems of CH₄ should therefore be supported.
- Optimising the grassland resource, which can be used by ruminants, through grazing or herd management practices, is a possible route to change. Alternative productions based mainly on the valorisation of fodder are to be investigated, as well as the optimisation of the use of co-products from the industry, so as to induce more efficient and less efficient systems that emit CH₄ while ensuring the production service and without competing with human food.
- Acting on the emissions of enteric CH₄ at the level of the animal or its management may lead to changes elsewhere in the production systems, in particular in the dejection produced. Work at CRA-W has shown that these are a variable and not insignificant source of greenhouse gases, including CH₄. It is therefore necessary to have comprehensive animal-deject-management approaches to organic matter in order to avoid antagonisms and promote synergies.
- Development of Decide software by CRA-W in connection with axis 1 above, which makes it possible to assess GHG emissions (CH₄, N₂, CO₂), NH₃ and the use of energy at operational level. By integrating the various emission items, it takes into account all the effects (positive but also antagonistic) of agricultural practices (e.g.: less than CH₄ but more than N₂O as a result of changes in animal nutrition). While Decide models need to be further improved by acquiring more baseline data and improving proxies, this type of modelling is essential to assess the real impact of a strategy against a well-defined objective such as limiting the impact of livestock farming on global warming. In order to avoid possible perverse effects, criteria other than the GHG balance should also be taken into account. Therefore, as foreseen in Axis 1 above, DECIDE will integrate new indicators, reflecting the three pillars of sustainability while considering the specificities of Walloon agriculture. In particular, economic and biodiversity impact assessments are envisaged.
- The diversity of practices observed and its impact in terms of greenhouse gas emissions (CH₄, N₂O), ammonia and particulate matter in the production and management of agricultural

²⁶⁵See for example the tool developed by the Walloon Centre for Agricultural Research (CRA-W) in collaboration with the University of Liège – Gembloux Agro-Bio Tech (ULg-GxABT), or the tool developed at CRA-W in collaboration with INRAE as part of the INDIGES (Moerman) and Smartcow (H2020) projects.

²⁶⁶For example, a research programme (<https://www.wagralim.be/nos-projets-innovation/blanc-bleu-vert/>) based on partnerships between Walloon companies and scientific partners is ongoing to enable both a sustainable feed supply and a racial characterisation of Blanc-Bleu Belge on environmental criteria.

organic matter can be seen as an opportunity to compare and thus reduce these emissions.

436	Support scientific research aimed at reducing methane emissions in cattle	Discounted	CAP 23-27: AKIS PRW 206 to 209
437	Facilitate the implementation of research results aiming at reducing methane emissions in cattle	Discounted	CAP 23-27: AKIS PRW 206 to 209

Axis 6: Developing circular and local sectors and supply in the agricultural sector

Promoting short supply chains makes it possible to limit GHG emissions from transport in particular. It is not uncommon that a food, before arriving in our plates, has already travelled thousands of kilometres.

A series of **initiatives, public or private**, to bring the consumer closer to the producer already exist and should continue to be encouraged and supported. Examples include the ' *Le Clic Local*' portal, which was created with the aim of facilitating the purchase of local and seasonal products by local authorities, or the ' *Bois local*' label makes it easy to identify local production produced using Walloon resources. The ' *Wood Local*' brand is an initiative of the Walloon forest-based industry aimed at highlighting its resources and know-how. Other actions in the same direction can be found in sections 3.5. on circular economy and 3.8 on accompanying change.

At regional level, **Food Wallonia** (Alliance Emploi Environnement Alimentation) whose Green Deal Sustainable Cantines supports local products, organic products and the diversification of protein sources in line with WHO requirements. Food Wallonia also supports food relocation projects.

- Regulating short supply chains in the agri-food sector and encouraging local and sustainable food (measure 3.6.10 of PACE)

Under this plan, a series of initiatives will be particularly supported:

438	Support the development and maintenance of relay hallways	Ongoing	PWEC
439	Support the implementation of agri-food cooperatives: start-up aid for producer groups	Ongoing	PWEC
440	Implement food relocation projects	Ongoing	Food Wallonia: AP Relocation PRW (NRRP) 198 to 200
441	Implement the development plans for the SoCoPro sectors	Ongoing	PRW 203

443	Develop the proposal for more sustainable food in canteens by amplifying the 'Green Deal Sustainable Canteens' aimed at increasing the consumption of local and/or organic products, and encouraging the diversification of protein sources in line with WHO and GMO-free requirements	Ongoing	Green Deal Canteens PRW 212 and 213

Axis 7: Maintaining and increasing agricultural and forestry carbon stocks

- Carbon storage in soils (PACE measure 3.6.13)

Several measures of the new CAP Strategy 2023-2027 contribute to maintaining permanent grassland or soil cover and thus **maintaining carbon stocks**. In addition, a new agri-environment-climate measure specifically aims at increasing soil carbon stocks.

The **initiative carbon farming** (certification of carbon removals) currently under discussion at European level, as part of the Communication on Sustainable Carbon Cycles, aims to promote low-carbon agriculture, by developing an economic model that makes it possible to remunerate farming and forestry practices favourable to carbon sequestration and storage. This initiative will be followed, ensuring consistency with a draft Plan de Relance Wallon, which aims to remunerate farmers for the environmental services provided.

New **soil carbon measurement campaigns** are planned under the Wallon Relance Plan (fiche 114). These campaigns may also include forest soils, for

which the IPRFW measurements do not currently show a trend of change.

456	Prohibition on converting or ploughing permanent grassland designated environmental sensitive in Natura 2000 sites.	Ongoing	PAC 2023-2027 (Conditionality BAE9)
457	Maintain permanent grassland on the basis of a permanent grassland ratio based on indications from the CAP.	Ongoing	PAC 2023-2027 (Conditionality BAE1)
458	Compensate for low intensity use of agricultural land or forest parcels in Natura 2000 area	Ongoing	CAP 23-27: Allowances Natura 2000
459	Protect peat, paratourble and low drainage “g” soils and permanent grassland in high flood hazard areas, whether outside or in Natura 2000 areas (prohibitions on ploughing and drainage, soil relief)	Ongoing	PAC 2023-2027 (Conditionality BAE2)
460	Tillage management, reducing the risk of soil degradation and erosion, including consideration of the slope gradient	Ongoing	PAC 2023-2027 (Cross-compliance GAEC 5)
461	Minimum soil cover to avoid bare soil in the most sensitive periods	Ongoing	PAC 2023-2027 Conditionality BAE6 and eco — ‘long ground cover’ speed
462	Preserve permanent grassland and enhance the contribution of livestock farmers who have reasonable livestock costs and encourage those with high costs to reduce them	Ongoing	CAP 2023-2027 ECO — scheme ‘Grassland
463	Preserve permanent grassland and maintain it in good agricultural and environmental condition	Ongoing	CAP 23-27 MAEC “Natural Prairie” supplemented by MAEC “Prairie de high biologique” and MAEC “fodder autonomy”
721	Improvement and maintenance of organic carbon in soils: annual remuneration based on the measurement of the TOC (total organic carbon)/soil clay ratio, with a bonus in case of favourable development	Ongoing	CAP 23-27: MAEC Sol
722	Improve monitoring of carbon in soils	Ongoing	PRW 114 to 118

Brussels Capital Region

There are no measures in this sector as the Brussels-Capital Region is an urban region.

LULUCF (LULUCF)

To achieve the objectives set by the LULUCF Regulation, individual governments have committed to smart and sustainable land use, softening, conserving and reforestation forests, preserving wetlands and grasslands, and improving carbon sequestration on agricultural land.

Federal State

The federal government will support regional policies aimed at achieving the objective (certification, standardisation of products, biomass/ILUC scaling criteria, federal circular economy action plan, etc.).

Flemish Region

LULUCF policies and measures

A number of policy initiatives are needed to design and implement a well-functioning and coherent LULUCF policy. These are explained step by step in the following rows.

Development of a comprehensive LULUCF emissions inventory and an ancillary carbon monitoring system

To date, the establishment of the Flemish greenhouse gas emission inventory for LULUCF is based on a fixed measurement network of around 6 800 reference points, whose land use is monitored. For the determination and evolution of the soil carbon content of each land use category (field, forest, grassland, wetland, etc.), the best available information in Flemish studies and literature is currently used for each soil type. For the land use category 'forest', account shall also be taken of biomass and volumes of timber harvested²⁶⁷.

This approach is in line with the IPCC definitions and requirements and, taking into account the available information, is currently the best possible approach. As the current methodology works with fixed coefficients for the evolution of carbon stocks in the different land use categories, it does not allow the effects of current or future efforts to increase carbon storage to be monitored in the greenhouse gas inventory. With regard to the 2021-2030 emissions inventory, there is therefore a need for an efficient carbon monitoring system, which provides a detailed picture of the evolution of soil carbon and timber production and harvesting among other things. We will improve this emission inventory, which will also serve as a basis for projections, in order to address the above-mentioned concerns (see "Hypothesis and simplifications").

Soil carbon monitoring network

In order to best monitor carbon stocks at Flemish level, it is essential to have a detailed knowledge of Flemish soils. In order to overcome the limits of current reporting, we are developing a **soil carbon monitoring network**. These data will serve as a basis for additional research missions that will map the effects of the policy, as well as the actual evolution of carbon flows.

The specific points of attention to be taken into account in the development of this network are:

- Quantification of the effects of (sudden) change in land use category, including deforestation or conversion of grassland to cropland, on the carbon content of the underlying soil.
- Mapping the impact of the management type on the carbon content and soil carbon evolution of grasslands.

²⁶⁷For the volumes of timber harvested, Flemish data are not available and are only reported at Belgian level.

- mapping soil carbon concentrations in different types of land take (concreted or not).

Improved data collection and monitoring of timber production

In order to have a good overview of carbon storage in timber products and the harvesting and use of wood production (sawn wood, wood panels, paper, energy, etc.), a **system for monitoring the production of wood at Flemish level (volumes, types of wood, etc.)** should be developed.

Preparation of a LULUCF action plan with projections, based on an assessment of the current situation and a calculation of the impact of possible policy strategies on carbon stocks

In order to protect or increase carbon stocks, LULUCF policy can play a role in three aspects:

1. Apply carbon management of a land use category

If land use, vegetation or land cover remains unchanged, land management and use can have a significant impact on carbon storage. Appropriate management of the land take area, introduction of small landscape features and buffer strips, adaptation of tillage and crop rotation, incorporation of crop residues, extensification of management, rewetting of grassland, etc., can all ensure the preservation or development of carbon stocks. Conversely, overturning and renewal of grasslands, soil erosion, drought, wetland drainage, overly intensive arable crops, etc. can lead to carbon losses.

2. Encourage the conversion of land uses that lead to carbon storage

Switching from one land use category to another will lead to changes in the carbon content of the soil and in the possible biomass (longlived). Changes in land use, including (spontaneous) afforestation, rewetting, conversion of cropland to grassland (extensive), nature management and (coated) land take generally lead to increased carbon storage.

3. Slow down land use conversion leading to carbon loss

Cultivation of land, deforestation, conversion of grassland to cropland or additional land take are examples of land use changes that often lead to reduced carbon stocks.

In the case of a change of land use category, carbon losses tend to occur much faster than the build-up of new carbon stocks. In order to preserve existing stocks (in forests, grasslands, wetlands, etc.), it is therefore a priority to avoid such changes in land use.

Table 2-18 lists LULUCF policies. For all these policies, the impact of the current options has been considered in the projections. **Most of the measures listed cannot currently be calculated** due to insufficient information available or because the methodology currently applied is too general to discern the possible impact of specific measures.

Based on this (non-exhaustive) list of policy measures, Flanders is developing a first LULUCF Action Plan which will be available at the end of 2023. Challenges related to data and information exchange, optimisation of inventory and emission projections, including the envisaged differentiation within land take and challenges related to the effective implementation of the proposed measures on the ground are part of the scope of the Action Plan.

Measure No	Policy measure (s)	Within the projection s (AMS)	State of play
	Space Policy/Environment Department		
	SVBRV – Approved by the Flemish Government on 20 July 2018 (mentioned in the VEKP and the Flemish Climate Strategy 2050.		
1.	Average additional daily land take is reduced to 3 ha by 2025 and to 0 ha by 2040	Yes	Decisions to level strategic placing in carried out concrete from policies in preparation
2	Concreting by reducing hard coverings in agricultural, natural and forestry uses by at least 20 % by 2050 compared to 2015.	No	Decisions to level strategic placing in carried out concrete from policies in preparation
3.	Concreting by reducing or limiting levels of artificial and existing additional.	No	Decisions to level strategic placing in carried out concrete from policies in preparation
	VAP – Flemish Climate Change Adaptation Plan 2030 (Vlaams KlimaatadaptatiePlan 2030) and LEKP – Local Energy and Climate Pact		
4.	Development and management of land take for carbon storage (gardens, parks, climate roofs, canvents, public and private spaces, etc.) – Green blue metamorphosis of the built environment (wide range of VAP actions)	No	Decisions to level strategic placing in carried out concrete from policies in preparation
5.	LEKP – lokaal Energie- en Klimaatpact (Local Energy-Climate Pact) One additional tree by Flamand by 2030 1/2 metre of additional hedge or garden plantation for each Flamand by 2030	No	In process of execution

	An additional natural green strip of at least 10 m² per 1 000 inhabitants by 2030 Debunking of 1 m² per inhabitant from 2021 to 2030 Additional 1 m³ of rainwater collection for reuse, buffering and infiltration of rainwater per inhabitant between 2021 and 2030		
	Agriculture/DLV, VLM		
	CAP – reformed CAP in force during the 2014-2020 programming period; new JAP applicable from 1 January 2023; transitional Regulation in force in 2021-2022		
6.	Preserve carbon stocks in agricultural soils by protecting carbon-rich soils (wetlands, peatlands and permanent grassland).	No	Decisions to level strategic placing in carried out concrete from policies in preparation
7.	Promoting carbon storage using certain techniques and crops	Partly	Decisions to level strategic placing in carried out concrete from policies in preparation
	Houtkantenplan VLM (forest edge plan – launched by Minister Zuhal Demir in October 2022		
8.	Houtkantenplan (Forest edge plan). Strengthening the forest edge network for a climate-resilient and biodiversity-rich campaign (VLM)	No	In process of execution
	Nature and forests/ANB		
	Note from policy general 2019-2024 — Environment – Presented by Zuhal Demir on 8 November 2019 and included in the VEKP and the Flemish Climate Strategy 2050.		
9.	Preventing deforestation and maximising conservation of existing useful forests	Yes	In process of execution

10.	10.000 ha of additional forests by 2030	Yes	In process of execution
11.	By 2024, an additional 20 000 hectares of nature will be effectively managed.	No	In process of execution
12.	Adapted forest management	No	In process of execution
	VAP – Flemish Climate Change Adaptation Plan 2030 (Vlaams Klimaatadaptatieplan 2030)		
13.	Programma Natte Natuur (moist nature) – 20 000 hectares restored or improved by 2030	No	Decisions to level strategic placing in carried out concrete from policies in preparation
	Water/VMM		
	General policy measure included in the VEKP and the Flemish Climate Strategy 2050, including the reference to the Regional OC (OC-R) and the Sigma Plan.		
14.	Increased storage through integrated water management, landscaping and rewetting: climate, biodiversity and water management guide the design and management of wetlands	No	In process of execution
	VAP – Flemish Climate Change Adaptation Plan 2030 (Vlaams Klimaatadaptatieplan 2030)		
15	Improving water retention in valleys through water level orders by 1 January 2027	No	Decisions to level strategic placing in carried out concrete from policies in preparation
16	To enable resilient groundwater management to change climate, the VLAREM regulations are in the process of being amended, in particular as regards drainage, drainage and lowering levels.	No	Decisions to level strategic placing in carried out concrete from policies in preparation
	Materials management – circular economy/OVAM		

	VEKP and Flemish Climate Strategy 2050		
17.	Increasing carbon storage in wood products and circular economy: deployment of Harvested Wood Products (HWP) according to the cascading principle.	No	Decisions to level strategic placing in carried out concrete from policies in preparation
18	Monitoring of European developments in certification based on a Flemish carbon market	No	To be started/n.a.

Table 2-18: Non-exhaustive list of LULUCF measures

Below you will find a qualitative explanation of how the above principles can be reflected in space policy, agricultural policy, forest and nature policy and material policy, and their impact on the carbon balance of the Flemish LULUCF.

Reduction of additional land take, clearing and management of coated land take

Land take, in particular the coating of different soil types, leads to relatively high carbon losses. The extent of these losses can be limited in three ways:

- Reduce additional land take;
- Reduce or limit the degree of coating in existing and additional land take respectively;
- Develop and manage land take with the aim of increasing carbon storage.

The strategic vision of the Space Policy Plan for Flanders (BRV) includes, inter alia, the objective of reducing the average additional daily land take to 0 ha by 2 040. As the category 'soil Artificial' is the category with the lowest carbon stock, net emissions can be expected for this category.

The different objectives of the BRV strategic vision will be achieved in interdependence. This should ensure a gradual decrease in carbon losses compared to the current trend. If the target is not met, emissions will be even higher due to increased land take. The implementation of the BRV strategic vision requires several related actions and initiatives. Among the ongoing initiatives, the following will have an impact on carbon storage: Decree on residential reserve areas, designation of open areas sensitive to water, etc.

These carbon losses can be further mitigated by the ambition of the strategic vision to achieve the remaining land take growth without increasing the total coating rate, and provided that an effective carbon monitoring system is put in place to detect such interventions.

The removal of the surface in open spaces and at the level of land take, as well as the development of blue/green veins in our towns and villages, must be able to contribute to an increase in carbon storage in land take. Encouraging the management of coated and uncoated land take (gardens, parks, climate roofs, blankets, public and private spaces) offers opportunities to store more carbon. Environmental policy supports the development and sharing of knowledge so that Flanders, together with local administrations and promoters, can develop state-of-the-art project practice in this field. The Flemish Climate Change Adaptation Plan (VAP) and the Local Energy and Climate Pact implement and facilitate the realisation of green and blue infrastructure in coated and uncoated land take. Both plans take into account the

differentiation of land take.

On the proposal of the Flemish Ministers Zuhair Demir and Lydia Peeters, a multidisciplinary group of experts issued a reasoned opinion in summer 2022 to better protect Flanders from a new water bomb: “Weerbaar Waterland”. This opinion has led to additional investments in water security, also exploiting the potential for links to carbon storage, among others. For example, the reinforced sigma plan (+ EUR 60 million) and the Flemish Climate Change Adaptation Plan (+ EUR 150 million) will be tendered and invested in 2023 and 2024, which will also provide more space for water and wetlands along navigable and non-navigable rivers.

In addition, it is also possible to unleash in the open space. The strategic vision of the BRV recommends that by 2050 the rate of coating in agriculture, nature and forestry should be reduced by at least 20 % compared to 2015.

When designing the final BRV, the impact on Flemish carbon stocks will be taken into account. The necessary measures will be taken to limit the impact of spatial development on the Flemish LULUCF balance.

Increasing carbon storage in agriculture and horticulture

In addition to the measures to reduce agricultural emissions covered by the ESR Regulation (Regulation 2018/842) (see Chapter 3.1.1.3), the agricultural and horticultural sector also has an important responsibility for carbon stored in soil. Indeed, the carbon stocks of arable land and cultivated grassland continue to decrease in Flanders. This also means that there is considerable potential to reduce carbon losses and increase carbon farming²⁶⁸. Higher carbon content is also an excellent adaptation measure, as it improves soil quality and increases resistance to drought and erosion. In addition, the agricultural sector can also engage in surface carbon storage, for example by planting agroforestry elements or small wooded features of the landscape.

The agricultural sector can reduce carbon losses through the following policies and related measures:

1. Preserving carbon stocks

Meadows remaining on the same plot and with little renewal (overturning and immediate sowing) store carbon until after a few decades the soil reaches its saturation point. In case of overturning grassland and conversion from grassland to cropland, carbon stocks are lost rapidly (about twice as fast as they build up). Therefore, in order to protect existing carbon stocks, it is important to limit the overturning of grassland and to ensure that grassland stays on the same plots. Offsetting of grassland returned to new plots (see permanent grassland regime) will lead to net emissions in the short term, as carbon will have to be built back on the compensated land.

In the CAP for the period 2021-2023, cross-compliance was therefore reinforced for a maximum decrease in the ratio of permanent grassland to the total agricultural area of 3 % compared to the Flemish reference ratio (vs. 5 % in the previous CAP period). When this ratio is exceeded, some farmers are required to restore permanent grassland. Returned grassland parcels are also excluded from certain measures such as the organic matter eco-scheme in cropland, some interventions specifically aim at prolonging the persistence of grassland.

Special attention is also paid to the protection of carbon stocks in peatlands and wetlands. Compliance with peatland and wetland protection measures is also included in the 2023-2027 CAP conditionality. Exploring the potential of paludiculture is a possible way forward in this area. Several partners in the wider sector of culture substrate ²⁶⁹ also included in the agreement ‘Making cultivation Substrates more sustainable for the hobby and professional sector’ a commitment to work on the replacement of peat and peat in culture

²⁶⁸Of Hoes & Ruyschaert (2017). Carbon storage opportunities in grasslands and cropland ILVO Mededeling No 231.

substrates with sustainable, renewable and/or local alternatives.

2. Promoting carbon storage

Each year, part of the soil organic matter is transformed into CO₂ and nutrients by biodegradation and mineralisation processes. This should be compensated by the application of fresh organic matter. It is only when this loss has been compensated and more stable organic matter gradually built up that there will be net storage. Farmers can take a combination of measures on arable land to maintain or increase carbon stocks: crop rotation with more crops, cereals, multiannual crops, application of stable organic matter in the form of organic fertilisers (manure, compost, etc.) and agroforestry. Several of these beneficial measures will be supported by the CAP from 2023 onwards through eco-scheme, MAEC or VLIF support (NPI).

Increasing carbon stocks on plots can also be encouraged by the carbon simulation module under development under the soil passport (LIFE CarbonCounts).

²⁶⁹ OVAM, Vlaco vzw, Belgische potgrondfederatie, suppliers of alternative raw materials (ANB, Natuurpunt, VLM), research institutes (Agrolink Vlaanderen, ILVO, Inagro).

This requires an integrated policy framework that addresses the obstacles of the current legislative framework (e.g. for the local use of organic residual flows through on-farm composting)²⁶⁹ and focuses on the integration of appropriate measures. In particular, efforts should be made to ensure that land application practices are compatible with increased carbon content. This needs to be supported by (practical) research focused on the potential and practical feasibility of measures to increase carbon farming.

Competition for the use of biomass produced, i.e. its application to soil to increase carbon content or its removal for bioenergy, biofuels and the bioeconomy, is becoming increasingly important. When monitoring biomass flows, a climate assessment should always be carried out, where soil carbon storage will also be taken into account. The quality of the organic matter introduced into the soil is an important point of attention. This must of course not have an impact on other environmental aspects or lead to a net emission of greenhouse gases.

For an overview of the different eco-schemes and agri-environmental measures under the CAP, see Part II D Agriculture.

Increasing carbon storage in forests and nature

Deforestation is a major source of emissions in the LULUCF sector. New reforestation increases storage, but this process is slow. Old grasslands also have highly carbon-rich soils. These soils sometimes contain more carbon than forest soils. As a general rule, however, it can be said that in the context of LULUCF policy it is more effective to avoid deforestation than to compensate for deforestation by reforestation. Natural and semi-natural grasslands and wetlands also contain large amounts of carbon. It is therefore better to preserve these carbon stocks in the best way to achieve the LULUCF target.

- Prevention of deforestation and loss of old grassland

The²⁶⁹ first steps in this direction will be taken as part of the Voedselverlies in Biomassareststroom Circular 2021(Food Losses and Biomass Waste Flows) Action Plan.

The most obvious measure to comply with the no debit rule is to protect existing carbon stocks by minimising these emissions. Management of natural (semi-) grassland, forests and wetlands can be better targeted. Preserving old grasslands is also a major challenge in this context.

- Increased storage through the development of additional forests and natural areas

By 2030, Flanders aims to create 10 000 hectares of additional forests.

Investments will also be made for a net increase in high quality natural areas. The focus is on achieving conservation objectives under Natura 2000 policy, as well as on achieving types of natural spaces with high carbon storage potential. In this context, coordination with integrated water management and adaptation to climate change is a central principle. By 2024, an additional 20 000 hectares of nature will be effectively managed.

At the same time, the prevention of natural fires (in forests and more broadly, for example in heathlands) through appropriate monitoring and monitoring also requires the necessary attention. Fires disrupt soil carbon accumulation and vegetation and release significant amounts of CO₂.

- Forest management

For existing forests, a comparison of storage or observed carbon emissions with an *ex-ante* reference level will determine whether Member States have an emission credit or flow. Management/harvesting compared to management in the period 2000-2009 will be crucial for existing forests (without deforestation or reforestation). Under unchanged management, neither a large amount of credit nor a large amount of debits would be generated for this category. More intensive use, for example through faster rotation, could rather lead to a debit in this land use category, while a more extensive approach could generate credits.

- Increased storage through integrated water management, planning and rewetting

A large part of Flanders' historical wetlands and marshes were drained in the 20th century. As with old forests and grasslands, it is more interesting in terms of carbon storage to maintain existing wetlands than to replace them with rewetting elsewhere.

Together with water managers, we restore the natural dynamics in the valleys. We make maximum use of the storage capacity of the streams and rivers landscapes and create additional wet natural spaces if necessary. Several policy instruments, which have not been designed exclusively for this purpose, lead to carbon storage by rewetting. For example, 270 regional maintenance targets include targets for the restoration of wet vegetation, for example by wet heather, ponds and peatlands, marshy forests, etc.

The Sigma plan²⁷¹ improves Flanders' resilience to the Scheldt floods and its tributaries. The space for natural flood areas goes hand in hand with rewetting and therefore carbon storage in these wet soils. The 'Rivierherstel LEIE' project provides for the restoration of wet landscapes along the Lys. In addition, a uniform assessment framework is developed and can be used by all water managers and the ANB for the design and delivery of opinions to projects for the restoration of streams and flood zones.

The Vlaamse Milieumaatschappij (Flemish Land Society) endeavours, as far as possible, to restore the natural status of rivers and river valleys through²⁷² ecological restoration. In addition to improving resilience and increasing biodiversity, interventions such as river remodelling also increase carbon storage. Preventing the

²⁷⁰<https://www.natura2000.vlaanderen.be/projecten>

²⁷¹<http://sigmaplan.be/nl/over-het-sigmaplan/>

²⁷²<https://www.vmm.be/water/beheer-waterlopen/ecologisch-herstel#section-2>

draining of certain endangered rivers can also contribute to this. A green and blue mesh is carried out as part of integrated area projects.

In addition to the examples given, it is important to consider rewetting projects in a broader perspective on integrated water management. With this in mind, more space for water is created, both underground and surface. The development of areas of interest and attention, let alone all stream and river valleys, will be based on an integrated approach in which water management, climate buffer, carbon storage and biodiversity are at the centre of concern.

Carbon flows for the wetland use category are limited. This category is not negligible; above all, the area of land in this category is limited. Given the potentially large carbon stock present per hectare of wetland, the conservation of these areas is the main concern.

We are developing a wetland agenda. It is a multi-annual programme for the hydrological restoration of valleys and naturally wetlands (including wetlands) for water management, nature development, carbon storage and the creation of a climate buffer. These include the ongoing Blue Deal projects, the Programmatische Aanpak Stikstof (PAS) Restoration Programme and the Flemish Climate Change Adaptation Plan (VAP) investment programme.

The possibilities of capturing more greenhouse gases in the most important Flemish ecosystems are being studied closely. To this end, the impact of land management and use on carbon storage needs to be quantified in order to develop innovative forms of management.

As regards the future forest and nature policy, the impact on Flemish carbon stocks will be systematically analysed and maximum efforts will be made to limit the impact on the Flemish LULUCF balance.

To finance increased soil carbon storage and aerial biomass, new market-based financing mechanisms will be developed and deployed (see 3.1.1.1.6.3).

Increased carbon storage in timber products and circular economy

What happens to timber harvested from (existing) forests determines the speed at which carbon is converted to CO₂ after harvesting. The LULUCF Regulation lays down rules for reporting and accounting for carbon storage in harvested wood products (HWP: Harvested Wood Products). From a climate perspective, it is desirable, in line with the cascading principle, to use wood products for long-lived products and only afterwards (e.g. at the end of life) for energy production.

This vision is one of the starting points of the Action Plan Food Losses and (residual) biomass flows 2021-2025, which implements actions contributing to long-term carbon storage in various applications. In the future, the impact of policy choices on carbon stocks in wood products and thus on the greenhouse gas inventory will be quantified and maximum efforts will be made to limit the impact on the Flemish LULUCF balance.

Monitoring of European developments in certification based on a Flemish carbon market

Flanders is closely monitoring the evolution of the EU Regulation on the certification of carbon removals. The European Commission therefore proposes to establish a methodology at European level to certify negative emissions from carbon farming, carbon sequestration in products and permanent storage through industrial technologies. In this regard, Flanders has committed to put in place a robust framework of requirements for monitoring, reporting and verification. This framework should be adapted to ensure the possible integration of carbon removal technologies into the European climate architecture (LULUCF, ESR,

ETS). Flanders argues that there are significant differences between the different carbon removal methods and that the conditions and rules on monitoring, verification and reporting should therefore be adapted to the specific removal method.

Once approved, this European certification method can also be used to develop a Flemish carbon market as part of the LULUCF policy.

Region Walloon

Several measures identified below also contribute to **the adaptation of forests to climate change**, which is a key issue in ensuring the long-term maintenance of carbon stocks in a context where several impacts tend to increase, such as episodes of droughts or scolyte development.

However, given the objectives of increasing sinks, specific actions to *increase* carbon stocks will also be needed. These elements were discussed in the context **of the “Forest Assises”** held in 2022, with a view to drafting the Regional Forestry Strategy.

Regeneration and replanting (PACE measure 3.6.11)

Several existing actions and premiums aim to encourage replanting in non-forest areas with the exclusion (except for derogations and under cover of obtaining the necessary permit) of areas for agriculture, to promote biodiversity and forest resilience through natural regeneration and planting of several species, or simply to ensure natural regeneration and replanting by owners who have left the management of their parcels, for example in very small properties.

444	Resilient forest: rebuilding a more resilient forest with diversified and adapted species to change climate, in encouraging public and private forest owners to regenerate their forests while promoting the development of sustainable practices, taking into account the ecological register of species	Ongoing	PRW
445	Yes we plant: Encourage afforestation, planting of woody elements and agroforestry	Ongoing	Plan Yes we plant
448	Natura 2000: consider subsidising the planting of broadleaves after resinous in the valley background	New	PWDR measure 7.6
449	Preserve existing hedges and wooded strips in agricultural areas (cf. cross-compliance GAEC 8)	Ongoing	PAC 2023-2027 (Cross-compliance BCAE8)
450	Supporting farmers in maintaining and planting biodiversity-friendly features including trees and hedgerows	Ongoing	PAC 2023-2027 Eco-scheme "Ecological mesh size"

Forest management (PACE measure 3.6.12)

In addition to the requirements of the Forestry Code, several actions support sustainable forest management. Many buyers now demand timber from PEFC or FSC certified forests. It is also important to pay attention to soil preservation through the promotion of less impactful means, such as animal traction.

In addition, in order to support building renovation objectives, particular attention will be paid to the development of a local construction timber production sector and to the use of local and bio-based materials.

451	Follow the Code forest that requires, for all artificial regeneration, the choice of species in accordance with the conditions of the forest station, according to the ecological register of species	Ongoing	Forest code Art 40
452	In the framework of forest certification, encourage forest owners to have their sustainable forest management certified	Ongoing	
453	Promote management methods for irregular forestry, mixed with continuous cover, natural regeneration.	Ongoing	Circular No. 2718 of 24.09.2013
454	Adapting management modes: Five-year forest research and extension plan. Improve and develop forest health monitoring tools. See crisis prevention and management plans.	Planned	PRW 108 and 109
455	Develop legal tools for better forest crisis management and prevention	Planned	Code Forestry

700	Maintaining forest ecosystem functions through the following 3 CAP measures: 353 – investment aid for forestry and forestry undertakings (first transformation of wood) 357 – aid for investments in forestry infrastructure linked to climate change (forest services) 342 – payment under Natura 2000 in forest area	Discounted	CAP 23-27
702	Improve soil preservation through the product specification for timber sales. In particular, ensure that forest regeneration is not affected by forest regeneration and forest regeneration capacity	New	
703	Supporting and boosting the local and circular wood industry	Ongoing	PRW 107 and 110

Carbon storage in soils (PACE measure 3.6.13)

See section on Agriculture

Brussels Capital Region

There are no measures in this sector as the Brussels-Capital Region is an urban region.

Other policies

Federal State

Information, awareness raising and education

The transition to a climate-neutral society is only possible if all layers of society are not only aware of the challenges posed by climate change, but also adequately sensitised to act and thus become “part of the solution”. Education – important because the message is delivered (and repeated) in a structured and age-appropriate way and at the level of the target audience – is a very appropriate and valuable tool in this regard, for example for young people. But the transition will also require specific training for certain professional groups, whose work content will undoubtedly change as a result of the transition.

- Objectives
 - Informing citizens on the causes and consequences of climate change and on the climate policies implemented.
 - Inform citizens on possible solutions to tackle climate change, raise awareness and encourage them to act, both in their behaviour and in their consumption habits.
 - Supporting and promoting educational tools in the context of specific adult learning, necessary for the transition.
 - Engage education, public awareness, public participation, public access to information and public

debate, as stipulated in Article 12 of the Paris Agreement, in order to increase support for climate neutral transition among stakeholders and the general public.

- Operationalisation

The federal government provides a series of projects and tools to inform and raise awareness among the general public and young people in particular about the possible technological and behavioural changes needed to achieve the transition to a climate-neutral society by 2050 (see overview of projects and tools available at <https://climat.be/education>).

Operation of state-owned enterprises

- Objectives

- Making the federal government carbon-neutral by 2040, energy neutral buildings and climate-neutral mobility.

Public buildings shall be energy and climate neutral by 2040, taking into account the existing building stock and technical, legal and economic constraints, as well as the accessibility of public buildings and the continuity of public services.

For governments and public transport (bus lines), all new cars and new buses purchased will be zero-emission by 2025.

- ‘ Greening the public vehicle fleet (to give the right example), with the ultimate goal of achieving zero-emission vehicles.
- With their sustainable public procurement, public authorities will encourage the market to move towards a carbon-free economy (greening their fleet, purchasing green electricity, purchasing in line with circular economy principles, choice of award criteria, etc.).

Climate strategy for defence

- Objective

Defence will develop a climate strategy as set out in the European Union’s Strategic Compass. This strategy will enable Defence to adapt to the changing environment caused by the climate crisis while reducing its own emissions (mitigation) without compromising the military efficiency or security of personnel.

- Flagship actions (description)

- Developing a Climate Strategy for Defence, as set out in the EU Strategic Compass (2023).
- Prepare the implementation plan (2024).

- Annual monitoring and evaluation (from 2025).

- Other measures
/

- Impact

Establish a methodology for measuring greenhouse gas emissions (2023);

Once the methodology has been determined, carry out a baseline measurement and set concrete carbon footprint targets (2023).

Sustainable public procurement: fostering a transformation of the low-carbon economy

- Existing objective/Update

Through sustainable public procurement, provide the necessary incentives for the transition to a low-carbon economy. This includes greening the car fleet, purchasing green electricity, procurement according to circular economy principles, etc.

- Flagship actions (description)

1. State of the federal car fleet to be examined/described in the description of the government's federal car fleet as part of the review of the existing Circular 307e.
2. Circular 307e of 13 July 2009 needs to be amended to take account of the Clean Transport Directive and be brought into line in order to speed up the elimination of obsolete standards.
3. Framework agreements BOSA (Procurement Centre) are reviewed and verified to ensure that they are sufficiently rigorous. The following measures have already been taken:
 - a. 2021
 - i. Framework contract for the purchase of office equipment (awarded)
 - ii. Lot 2 of the Framework Agreement lists small office equipment and labelled products that fully comply with the Guide on Sustainable Public Procurement.
 - b. 2022
 - i. Framework agreement for snacks, refreshments, drinks, coffee (full range of coffee, milk, cocoa powder) and accessories such as purchase and rental of coffee machines (not yet allocated)
 - ii. Several batches include articles with labelled products (coffee, hot chocolate, snacks and refreshments) as well as recyclable cups. The tender dossier also sets out conditions in terms of energy consumption for distribution appliances (water consumption and energy performance).
 - iii. Framework contract for office furniture (awarded) and ergonomic chairs (awarded):
The technical specifications for furniture have been developed taking into account sustainable development: labelled materials (PEFC obligation for 433

wood), waste disposal and furniture circularity. The guarantee periods have been extended. In addition, the sustainable certification of furniture and chair coverings was taken into account in the award criteria and enabled the participating candidates to obtain a better score.

- iv. Framework agreement for the purchase of smartphones and other mobile devices:
The technical specifications took into account the requirements of the Guide on Sustainable Procurement. The new joint agreement will be concluded in 2023 and a reparability indicator/label/certificate will be included in the technical specifications.
- v. Framework contract for the purchase of desktops, laptops and accessories (not yet awarded):
The award documents shall mention technical requirements related to the labels. In addition, a sustainable development annex has been added to the award documents. Transport requirements (compliance with environmental standards) have also been included. The contractor can demonstrate that he is taking additional measures to reduce its environmental impact.

4. Other contracts with suppliers are also being revised.

- Flagship actions (description)

Boosting sustainable development in centralised federal public procurement, through: technical characteristics (labels, standards), relevant selection and award criteria, or integrating circular economy principles into public procurement, or reserving contracts, including for personalised companies. This stimulus requires an analysis of the multiple relevant products and purchasing segments, which can be highlighted. In this sense, the circular of 16 May 2014 (Sustainable Public Procurement) will be reviewed in 2023 by the SPF BOSA, the Federal Institute for Sustainable Development (IFDD) and the FPS Chancellery.

- Other measures

- Maximising the creation and deployment of renewable energy (purchase of green electricity, installation of solar photovoltaic panels). See also Defence's efforts
- Integration of sustainable development into the ^{AH}governance agreements
- Optimisation of criteria in public procurement (carbon clauses) ^{AH, AK}, 274
- Give the right example through its purchases (e.g. equipment and materials)
- Digital functioning of the administration: continuation of the administration digital, streamlined procedures, one-stop-shop, paperless office

- Operationalisation (implementation)

For each draft Federal Joint Supply Agreement, the responsible organisation is required to consider whether sustainable development clauses can be included.

- Impact

By encouraging the production and use of more environmentally friendly goods and services, the measure

²⁷⁴For example, product life cycle analysis in terms of energy and environment, product quality, waste management and local employment. These criteria must be defined in a clear and transparent manner. Compliance with the criteria must be verified and monitored.

could indirectly contribute to the reduction of GHG emissions. The measure aims to reduce energy consumption, improve energy efficiency and promote the use of renewable energy sources.

- Budget
/

Greening the government's car fleet (zero-emission target)

- Existing objective/Update

Greening the government's car fleet (role model) to achieve zero emissions by 2040. This through the creation of a mechanism based on regulatory provisions (mobility package – Royal Decree “mandates” – the update of Circular 307e of 21 April 2017) and the purchasing instruments needed to implement the greening rules.

The first measure will be to minimise the fleet of vehicles, in particular by not replacing certain vehicles or offering other softer mobility alternatives if adapted (e.g. electric bicycles or scooters). A better distribution of vehicles between nearby public services (“shared vehicles”) can also be considered in order to reduce the number of vehicles.

From 2024 onwards, all purchase orders for vehicles purchased, rented or leased by the Federal State will concern only emission-free vehicles (0 gCO₂/per km). Until 2024, contracts for purchase, leasing, rental or hire-purchase shall expire by 31 December 2025 at the latest, unless they are emission-free vehicles. When procuring vehicles, federal buyers may include vehicle energy efficiency criteria in the award criteria.

- Flagship actions (description)

Align the management and supply of the car fleet and buildings with the objectives of climate and energy neutrality by 2040 ^{AK}. See also the efforts made by Defence, SNCB, Infrabel and Régie des Buildings.

- Other measures
/

- Operationalisation (implementation)

The implementation of this policy is based on:

- The publication of a new Circular 307f which was approved by the Council of Ministers on 17/3/2023 and which will enter into force in April 2023 after its publication in the Moniteur belge. It stipulates that, from 1 July 2024, new acquisitions must be zero-emission and that by then new acquisitions must meet the definition of clean vehicle according to the Clean Vehicles Directive (max. 50 g CO₂/km).
- The adaptation of the Royal Decree for management functions (Royal Decree of 29 October 2001 on management functions) by introducing a mobility budget and laying down the conditions for its use. This Royal Decree was approved by the Council of Ministers on 22/12/22 and will soon be submitted to the Council of Ministers for a second reading after the trade union negotiations before being published in the Moniteur belge.
- The proposal and display of a federal framework agreement in the context of a centralised federal

public contract (Royal Decree of 22 December 2017).

- The implementation of a replacement plan in which federal and programmatic administrations take into account shared fleet opportunities where possible and the use of shared mobility.

Definition of a target for 2030 and an implementation scenario through a federal action plan for mobility.

To be drawn up by the ministers responsible for sustainable development, mobility and the civil service.

- Impact

As part of the transposition of the EU Vehicle Directive, a quantitative GHG emission reduction target (vehicle emission limits) is set in the definition of clean vehicles, as well as a target share of clean vehicles to be achieved by type of public procurement. The measure also aims to reduce energy consumption. However, no quantitative targets or assessments were set for the energy impact of the measure.

- Budget

Each ministry sets its own budget in this area. It is therefore difficult to have an overview of this post. The data in the OIPC report does not allow for a simple extrapolation of costs.

The objective of the Defence is to have a civilian passenger fleet (passenger vehicles available on the market and not adapted for specifically military purposes) of at least 45 % green (electric) vehicles by 2030, with a budget of EUR 422 400 per year. In addition, an element of eco-driving has been added to the driving training provided by the Defence to drivers, which should lead to a more energy-efficient driving style (EUR 500 000 per year).

Eco-driving

Existing objective/Update

There are two objectives:

- Driving drivers so that they adopt a driving style aimed at reducing fuel consumption.
- Monitoring their driving behaviour through telematics installed in a maximum of 1 000 commercial leasing company cars. The data can be made available by the company on a dashboard.

- Flagship actions (description)

The two associated actions are training defence drivers in eco-driving and monitoring their driving behaviour.

- Other measures
/

- Operationalisation (implementation)

Eco-driving has already been included in the driver training programme, but pending the implementation

of the service contract, no follow-up can take place for the time being.

- Impact

By encouraging the reduction of fuel consumption, the Roadmap aims to reduce CO₂ emissions. According to an initial estimate, eco-driving would save between 25 and 65 tonnes of fuel.

- Budget

The public expenditure approved amounts to EUR 520 000, EUR 530 000 and EUR 541 000 respectively for the years 2023, 2024 and 2025. A budget of EUR 2872 000 is foreseen for the years 2026-2030.

International cooperation

Quantitative and qualitative contribution to international climate finance.

- Existing objective/Update

- Respect a pioneer at international level and commit to strong and ambitious climate diplomacy and cooperation.
- Ensure a fair contribution of Belgium to international climate finance.
- The federal government will honour the climate finance commitments made under the Paris Agreements, including the principle of additionality.

The Government is committed (via the Directorate-General for Development Cooperation and Humanitarian Aid) to an increasing contribution to international climate finance, separate from the development cooperation budget. The internal distribution of this effort will be finalised as soon as possible.

- Flagship actions (description)

1. Qualitative: The qualitative assessment of Belgian federal climate finance in 2021 (see Operational section below) contributed to the definition of some of the following qualitative objectives:
 - a. Belgium's contribution to international climate finance aims to support Belgian partner countries, and as a priority least developed countries, to:
 - i. Cross-cutting strengthening of their climate policies (i) strengthening the capacity of partner countries to meet the commitments of the Paris Agreement; II. Increased efforts thanks to the Belgian policy of taking into account national strategies and plans).
 - ii. Adaptation and strengthening the capacity of vulnerable communities in these countries to adapt to the impact of climate change. Within this broader framework, the following priority areas have been identified: sustainable management of biodiversity and ecosystems, including forests and soils; climate-resilient and smart agriculture; sustainable urban socioeconomic growth. Interventions are also chosen on the basis of their ability to improve living standards on a sustainable basis.
 - b. Strengthening the climate of cross-cutting integration in development cooperation: (I) inclusion as a cross-cutting priority in the new national government cooperation portfolios and (ii) climate mainstreaming as a cross-cutting theme in non-governmental cooperation programmes.

- c. Strengthening BIO climate policy.
- d. In addition, Belgian climate finance, in the context of Belgian development cooperation, aims to promote gender equality and women's empowerment. Specific interventions have also been launched to strengthen the inclusion of young people in developing countries in decision-making on climate policy, at local, national and international level.

1. Quantity:

- a. General (i) The Federal Government undertakes, for the period 2021-2024, to make a minimum contribution of EUR 100 million per year via the DGD and (ii) to draw up the internal distribution of the new and ambitious Belgian climate finance growth path.
- b. Increase in funding for multilateral climate and environment funds with 2020 funding as a starting point (GEF, then EUR 15 million, GCF, then EUR 20 million, LDCF and EUR 5 million).
- c. Deploy bi-multi projects (around EUR 10 million in 2021, to be increased as part of the growth path).
- d. Deploy existing inter-departmental procurement projects (EUR 12 million per year).
- e. New non-governmental cooperation programmes with increased climate mainstreaming both transversal and specific (currently unprecedented amount).
- f. New government cooperation programmes with a more cross-cutting and specific climate mainstreaming (currently unprecedented amount), including the flagship thematic portfolio on climate in the Sahel (EUR 50 million for the period 2022-2025).
- g. Increased contribution to climate finance through BIO (currently unprecedented amount).

- Other measures

- Operationalisation (implementation)

Following the independent qualitative assessment of Belgian federal climate finance in 2021, the Belgian federal departments prepared a management response based on the recommendations to improve Belgian international climate action. The Directorate-General for Development Cooperation and Humanitarian Aid (DGD) and the Federal Service for Climate Change are working on a proposal for a federal climate strategy for Belgian development cooperation (2023) to establish the following elements: climate priorities, common and strategic climate objectives and a set of targets for climate finance. Strengthening climate mainstreaming in development cooperation, including by increasing the funds available for this purpose, is also an objective of this strategy. Other planned measures focus on developing climate expertise, sharing of knowledge and practical experience. Particular attention will be paid to the monitoring and evaluation of cooperation programmes.

- Impact

- Budget

In the absence of a multiannual commitment, a further increase will be considered during the annual budgetary discussion. EUR 99,85 million of climate finance was reported in 2021.

For the period 2021-2024, the Federal Government committed an average annual amount of EUR 100 million in international climate finance under a first cooperation agreement for the period 2021-2030.

Governance

Climate governance: implementation, anchoring and participation

- Existing objective/Update

The Federal Government wishes to modernise the state structures around climate policy, increase its effectiveness and deepen its democratic principles, identifying concrete reform options that can be proposed to strengthen climate governance in Belgium, building on existing ^P work:

- Ensure an effective and transparent governance system throughout the policy cycle of planning, implementation, evaluation and adjustment.
- Strengthening and optimising existing management structures.
- Ensure alignment with the European Governance Regulation (2018/1999) ^A and international obligations.
- Optimising the complementarity and synergies of measures between different levels of government, including through the principle of mutuality (this means that each entity takes into account the impact of one measure on another entity's climate policy and strives to enhance the effectiveness of measures at all other levels of government).

- Flagship actions (description)

On 2 April and 8 October 2021, the Federal Government put in place a governance framework to improve the monitoring of the implementation of federal policies and measures on the basis of 'roadmaps' followed throughout a policy cycle. The 'roadmaps' are essentially an action plan for the operationalisation of these policies and measures and include a description of the interim plans and their deadlines, a budget, the identification of indicators and/or a methodology for monitoring the impact of these measures, in line with European reporting obligations.

The policy cycle provides for a six-monthly review based on the 'monitoring fiches' in which the federal departments and relevant government services provide a detailed state of implementation of these measures, which are compiled by the Climate Change Service in a monitoring table. The more descriptive 'progress reports' are compiled annually in a synthesis report, which shall be made public.

The Pre-Law on the Governance of Federal Climate Policy

On 14 July 2023, the Federal Government approved – at first reading – a preliminary draft law on the governance of federal climate policy. The draft law provides:

- Federal political ducycle anchoring aligned with the EU Governance Regulation and the EU Climate Law
- development of a monitoring, evaluation and reporting mechanism to organise in an efficient and transparent manner the use of the federal share of revenues from the auctioning of emission allowances. Revenues from the auctioning of allowances may be used for existing climate spending and investments, as well as for the financing of new or strengthened federal policies and measures;
- the creation of a committee of independent experts to advise on federal climate policy and its financing;
- the consolidation of the Federal Task Force to coordinate, consult and support the development, implementation and review of federal policies and measures and other tasks arising from the federal policy cycle;

The Climate Change Service will play a coordinating role in compiling and analysing the applications for

funding received and will establish an objective ranking for the allocation of financial resources to federal ministries and government institutions. The approval process will continue in the government and parliament for publication after receiving the opinion of the Council of State in early September 2023.

- Operationalisation (implementation)

Since the introduction of the federal policy cycle in 2021, monitoring fiches have been submitted twice in 2022 and once in 2023 for the preparation of three WFP monitoring tables.

The first synthesis report, of which the government took note on 22 September 2022, was published and then submitted for discussion by stakeholders and experts at the climate round tables (cf. consultation of social partners). This strengthened the involvement and participation of civil society and experts, as provided for in the 2020 Government Agreement.

The Summary Report and the Summary Report of the Climate Round Tables were made public and transmitted to the House of Representatives in September 2022 and January 2023 respectively.

The general public will be consulted on the PFEC and the intergovernmental measures of the NECP through a public consultation in autumn 2023 (see consultation).

The Synthesis Report, as well as the Summary Report of the Climate Round Tables, served as inspiration for the identification of additional policies and measures for the preparation of the PFEC project.

- Impact

This measure has no impact on greenhouse gas emissions or energy impacts: the planned actions are of a cross-cutting nature and aim at creating an adequate governance framework and facilitating the monitoring and development of new policies.

- Budget

For the period 2020-2021, a budget of EUR 167,000 was devoted to the impact assessment. In the same order of magnitude, a budget has been foreseen for the follow-up study to analyse the impact of the measures on greenhouse gas emissions.

Research

Centre of Excellence on Climate

- Objective Existing/Update

The Centre of Excellence on Climate has three objectives:

4. Bringing together and strengthening climate research resources to increase its impact.
5. Set up a collaborative structure with universities and research centres.
6. Developing climate services and solutions for decision makers and sectors.

The centre will be integrated into the federal institutions (Royal Meteorological Institute, Royal Institute of Spatial Sciences of Belgium, Royal Observatory of Belgium, Museum of Natural Sciences, Royal Museum of Central Africa, Sciensano, etc.). Climate research is already carried out in federal scientific institutions today, but it is rarely a priority, insufficiently coordinated and not aligned with policy needs for adaptation or mitigation.

To achieve its objectives, the Centre of Excellence on Climate will take into account the needs of its stakeholders, including the regional and federal levels of government.

In the long term, the Centre of Excellence on Climate should coordinate the activities of 75 to 125 Belgian researchers, creating a critical mass based on new and existing resources.

BELSPO currently finances a total budget of around EUR 2 million per year through its national and pan-European research programmes and its national, European and global research infrastructure programmes. See link to 3.5 (list of ongoing climate-related projects financed by BELSPO).

The Centre of Excellence on Climate will provide a budget of EUR 2 million per year to implement its tasks.

- Flagship actions (description)

On the basis of the decision of the Council of Ministers of 17 December 2021, the following priority tasks have been assigned to the Climate Centre of Excellence.

- Mission A: Bring together ESF climate research under one roof to improve its quality and impact.
- Mission B: Develop detailed climate projections for Belgium to provide a scientific basis for impact and vulnerability studies.
- Contract C: Provide scientific support to the ESF for the management of natural disasters (link with CCCRA-CC).
- Mission D: Develop programmes to increase cooperation between the Belgian ESF and universities/research centres.
- Mission E: Create an open portal to collect and share climate data for Belgian climate research.
- Mission F: Promote the participation of Belgian scientists and organisations in international programmes.
- Mission G: Provide a one-stop-shop for requests for climate services from businesses and organisations.

- Operationalisation (implementation)

- Impact

The Belgian Climate Centre of Excellence does not have a measurable target for reducing greenhouse gas emissions, but the measure argues that more and better climate research, transferred to economic and political actors, indirectly contributes to better mitigation and adaptation strategies.

- Budget

A financing plan is under preparation. The EUR 2 million paid in 2022 was never used and financed the restoration of the offices of the Uccle plateau, the physical location of the headquarters of the Centre of Excellence on Climate. Balances will be carried over to 2023.

The Climate Centre is based on the management model:

- Two-component direction: a scientific director and a director of operations. Two Directors to be recruited and approved for their posts by the beginning of 2023.
- Basic team: it will eventually consist of around 8 people. The team is currently in the process of recruitment.
- The 10-15 post-doctoral candidates and doctoral candidates of the Centre of Excellence on Climate, but still attached to their home institutions (universities/research centres).
- A steering committee composed of 14 members from federal and regional research centres, universities, federal administrations (Directorate-General, Development Cooperation and Humanitarian Aid), the private sector and the international scene. The Steering Group shall steer, monitor and evaluate the implementation of the Climate Centre's work. The Steering Committee has been set up. A first meeting was convened in April 2023.
- Executive Board: composed of certain members of the Steering Committee.
- Scientific Committee.

- Other measures

The intention is to increase tax support for R &D to promote the energy transition. This is also reflected in the requests made by the regions to the federal government in the previous version of the NECP. This is also described in more detail in Section 3.5.

Emissions of methane

Animal feed aspects are addressed in the Federal Circular Economy Plan 3.1.1 i. 4 A. and 3.1.1 i. 13.

Flemish Region

A climate-friendly Flemish Authority

The Flemish Authority assumes its responsibility to minimise its own climate impact. The climate transition requires significant efforts from all sectors of society and citizens. In this context, it is essential that the Flemish Authority succeeds at least 443 in its internal management and in the target groups on which it focuses its policy. In this way, it will be able to assume and fulfil its role as an example.

In 2016, the Flemish Authority's Internal Climate Plan was therefore approved by the Flemish Government. It contains a series of objectives and actions to enhance the exemplary role of Flemish Authority. On 16 July 2021 and then on 15 July 2022, the Flemish Authority's Internal Climate Plan was amended to implement the Flemish Government's increased climate ambitions and targets. In 2022, the Flemish Authority's Internal Climate Plan included 73 entities from the Flemish Central Authority.

As regards ambitions in **buildings and technical infrastructure**, the primary energy saving target has been increased from 32.5 % to 35 % by 2030 for each entity of the Flemish Authority. This target implies average annual energy savings of 2.09 % since 2017, which have been increased to 2.5 % from 2021 onwards and to 3 % from 2023 onwards. Each year, the energy budget of the largest energy consumers in the Flemish Authority is reduced by the same percentage. The resulting funds are distributed by the Vlaams Energiebedrijf (VEB) via calls under the **Energy Efficiency Action Plan (Actieplan Energie-efficiënties)** in the form of grants to entities for the implementation of energy saving measures. The CO₂ emission reduction target^{for} buildings and technical infrastructure has also been increased from -40 % to -55 % by 2030 (compared to base year 2015). This target applies to CO₂ emissions from fossil fuel consumption (excluding electricity).

All entities within the scope of the Flemish Authority's Internal Climate Plan will have to develop, by 2023, a **long-term building strategy accompanied by an Energy Master Plan aiming at carbon neutrality** by 2045. To do so, they can rely on the support of the HFB and the VEB. The development of such a strategic building plan is a necessary step to achieve the ultimate objectives and ensure that this transition takes place in an efficient (cost) manner. It is therefore preferable for long-term visions to start from a perspective that encompasses all Flemish authorities, in which entities are encouraged to look at their building strategy and asset management in a broader context.

To contribute to the development of long-term building strategies, there is also **SURE2050**. SURE2050 is an EU-funded training and coaching programme implemented by the Flemish provinces, HFB, Fluvius and VEB, among others, as project coordinators, to encourage and assist the Flemish central government and local administrations in developing a strategic building plan. The SURE2050 programme ran for four years and ended in April 2023. The SURE 2050 digital learning platform, with its manuals and tools, is publicly available and will remain available to all entities of the Flemish Authority and local governments, even after the end of the SURE2050 programme.

Het Facilitair Bedrijf (HFB) actively manages **energy** in various areas in order to ensure a good energy performance of its own assets and to relieve as much as possible the entities of the Flemish central government as part of the management of their assets. In order to achieve these objectives, the entities' buildings (primarily office buildings) will be centralised with HFB, which manages the buildings, and work is ongoing on the action plan for buildings and ISO 50001 and 14001 certifications. In addition, HFB makes government-wide efforts as agent for construction projects, specific contracts for third parties and buildings for which HFB does not itself pay the energy bill (e.g. 444

the INBO buildings in Geraardsbergen, WBL in Borgerhout, Geotechniek in Zwijnaarde, etc.). Other government-wide HFB efforts focus on (i) supporting entities in their property management (through the development and maintenance of the Elise management tool, a framework contract offer and the role in SURE2050) and (ii) the provision of feedback on existing regulations.

The entities' vehicle fleet will also be centralised and hosted at HFB, allowing for more reliable continuous monitoring of data and stricter application of the guidelines issued. For both buildings and technical installations and the vehicle fleet, consumption figures are kept up to date in central databases, allowing continuous monitoring, visualisation of developments and benchmarking. As regards **internal mobility**, the Flemish Authority's Internal Climate Plan sets the objective of carbon neutral internal mobility by the end of 2030:

- A reduction of at least 55 % in CO₂ emissions from fuel consumption for land travel (excluding shared vehicles) by 2030 compared to 2015.
- Offsetting of the remaining CO₂ emissions from business journeys by land and air through a CO₂ offsetting scheme.

Entities owning ships under own management will take stock of these CO₂ emissions and set a achievable but ambitious target by 2024 at the latest. The other measures of the Actieplan Mobiliteit (Mobility Action Plan) remain fully implemented.

The **Mobility Action Plan** aims to achieve the objectives of internal mobility. At the end of 2018, the Flemish Government decided no longer to purchase new service cars equipped with conventional petrol or diesel engines as of 2021. Concretely, as of 2021, we will purchase or lease only fully electric (BEV and FCEV) or plug-in hybrid vehicles (PHEV) with CO₂ emissions not exceeding 50 g/km, and CNG passenger cars. As of 2024, the Flemish Authority will purchase or lease only zero-emission passenger cars (BEV or FCEV). Maximum efforts are also being made towards greening for the purchase and rental of other vehicle categories, taking into account the minimum ecolabels of the KBBJ 2021 Circular. In addition to contracts for the purchase and leasing of environmentally friendly vehicles, efforts are being made to install the necessary charging infrastructure, actions to change user behaviour, limited financial incentives, discharge of entities, cycling infrastructure (bicycle charging), mobility studies, the provision of framework contracts for green driving and environmentally friendly vehicles, etc. The most polluting vehicles are deleted. Actions outside the scope (e.g. the sustainability of commuting) are also undertaken on a permanent basis.

Finally, the Flemish Authority is committed to **climate-friendly and circular public procurement** by including in the procurement documents specific requirements and criteria that impose or encourage circular and climate-friendly solutions. By also offering climate-friendly and circular framework agreements, entities of the Flemish Authority can reduce the environmental impact of their purchases with a minimum of administrative burden. The Flemish Authority will test the CO₂ performance scale in a number of lead markets and, in case of a positive assessment, apply it in those markets where it is useful and feasible. This measure is expected to lead to a reduction in CO₂ emissions from major construction sites. As the Central Flemish Authority, we want to be a pioneer in this area and continue to disseminate knowledge, information and good examples to also support other public actors.

Climate and local authorities

Cities and municipalities have many competences to support the energy and climate transition at grassroots level. Almost all Flemish cities and municipalities have made commitments under the Covenant of Mayors and the Local Pact for Energy and Climate lokaal energi- en Klimaatpact – LEKP (Local Pact for Energy and Climate) and have already launched numerous initiatives. There are many interfaces between these local initiatives and regional objectives, measures and actions (e.g. long-term renovation strategy, green electricity development, heating networks, sustainable heating of buildings, energy poverty, etc.) A good collaboration between the local and regional levels is needed.

The Flemish Authority therefore continues to encourage local authorities in Flanders to work together to achieve the objectives of the Covenant of Mayors and the LEKP. In practical terms, we will therefore support local administrations in their task of reducing energy consumption and greenhouse gas emissions on their territory and increasing the production of renewable energy. We will provide them with practical support in developing and above all implementing their climate and energy plans. These initiatives not only concern mitigation policy, but will also support climate adaptation policy at local level.

Support under the Covenant of Mayors

Under the Covenant of Mayors, we also propose tools to develop climate change mitigation and adaptation measures. In consultation with local authorities, these tools will be assessed in a timely manner and adapted to new needs. Since 2012, cities and municipalities have received methodological support for the preparation of local climate action plans (called SECAPS) within the framework of the Convention of Maires. The Flemish Government approved Flanders' accession as a territorial coordinator in the European Convention of Mayors (EMC) by signing the Coordinators' Declaration of Commitment on 25 February 2022.

Good tools require correct data input. For transport-related emissions, the traffic data used remains an important factor of uncertainty. There is a need for better data on local traffic, as they have not been updated since 2016. Work is therefore continuing on the development of the FLOMOVE/FLOMOVIA model, which should provide a grounded solution for both the future and past years. It is important that traffic data is collected in a uniform and correct manner, and that measures are recorded over a sufficiently long period of time.

As regards the provision of data, efforts are being made to make as much data as possible available to local administrations so that they can pursue an evidence-based policy.

Monitoring of local commitments in SECAPS will also contribute to the various international reporting obligations, in particular towards Europe on energy and climate. An analysis will be launched to explore the need, added value and possibility of aligning the Covenant of Mayors methodology and the methodology of the ESR emissions reduction target in Flanders in spring 2024.

Better support for local authorities at practical level

Local administrations are taking many interesting initiatives to reduce CO₂ emissions, support the energy transition and equip us against the effects of climate change. These initiatives are often very effective and inspiring, but do not spread sufficiently to other cities and municipalities. Good interaction between local authorities and the Flemish Authority is also needed. There are many interfaces between these local initiatives and regional objectives, measures and actions (e.g. long-term renovation strategy, green electricity development, heating networks, sustainable heating of buildings, energy poverty, etc.)

In 2020, the Flemish Government awarded a grant of EUR 4 million to the Association of Flemish Cities and Municipalities (Vereniging van Vlaamse Steden en Gemeenten – VVSG) for the establishment and management of a network of expertise on local energy and climate policy ("Netwerk Klimaat"). This is the period from 1 September 2020 to 31 December 2024. Netwerk Klimaat was established to facilitate dialogue and knowledge exchange with and between local authorities, and to provide professional support to local authorities in the development and implementation of their local energy and climate policies. It is reflected annually in a work programme, developed in close cooperation with local authorities and other relevant stakeholders. In particular, support shall be provided for the achievement and monitoring of pre-determined targets for energy savings and reduction of CO₂ emissions in the heritage of local authorities. Tools and coaching are also proposed to support local policies on sustainable heating, (collective) renovation, energy communities, etc. Knowledge sharing is promoted through webinars,

regional workshops, training courses and a digital database of good practices and standardised solutions. Subject to a positive assessment, a proposal for a decision to continue to subsidise this climate network will be submitted to the Flemish Government by 1 March 2024.

Local administrations can also use the framework agreements of the Flemish Authority for example for green cars, charging infrastructure at strategic locations, power purchase agreements for renewable energy and an extended offer for accompanying and implementing the renovation in collaboration with the VEB.

A renewed partnership with local governments: Lokaal Energie- en Klimaatpact (Local Climate Energy Pact)

The Flemish Authority wishes to continue to support and involve local authorities more closely in the development of energy and climate policy. The Energie- en Klimaatpact lokaal lays the foundations for structural collaboration and will ensure, through mutual commitments, a strong local climate and energy policy.

The Flemish Government Decree of 4 June 2021 definitively approved the award of a grant to the Flemish municipalities for climate actions in order to implement the Local Energy-Climate Pact (lokaal Energie- en Klimaatpact – LEKP). This was the first Energie- lokaal in Klimaatpact (LEKP 1.0), which meets the above-mentioned policy objectives. The LEKP 1.0 sets out 16 objectives that cities and municipalities can commit to achieving; they are divided into general objectives and four projects, extending until 2030 at the latest. The four “chantiers” are: greening, energy, mobility and rainwater. Commitments have also been made by the Flemish Authority.

On 5 November 2021, the Flemish Government took additional measures in addition to the existing Energy and Climate Plan for Flanders 2021-2030 to combat climate change. Several of these additional measures have led to a reformulation of the LEKP objectives.

LEKP 2.0 proposes a further reformulation for six objectives, taking into account the four yards. By signing the Pact, local governments commit, inter alia, to:

- Achieve a 55 % reduction in CO₂ emissions for its own buildings and technical infrastructure by 2030 (vs. 2015). The scope of this objective is also extended to internal mobility. The primary energy saving target is increased to -3 % per year from 2023 onwards (see above, chapter on buildings);
- Bring street lighting to LED lighting by 2030 at the latest;
- Developing local heat and demolition policies;
- No new decision of principle by the municipal council or municipal council concerning local taxes on ELIA’s electric masts and trenches;
- Achieve 25 fossil-free renovations out of 50 collective renovations per 1.000 housing units by 2030
- Inhabitants of 50 dwellings per 1.000 housing units will be invited to a climate table to discuss a neighbourhood approach (focusing on the sustainability of heat demand and synergy between the four construction sites) by the end of 2024.
- Ensure 1,5 equivalent (semi-) public recharging point per 100 inhabitants (99 000 recharging points (CPE)) by 2030.

On 16 December 2022, the Local Energy and Climate Pact was reinforced by an addendum (LEKP 2.1) with new commitments, including the implementation of a thematic contract for the improvement of neighbourhoods, focusing on preventing energy poverty through the renovation of neighbourhoods and energy communities. It can be signed until July 2023.

The table below shows the different versions of the LEKP and its objectives.

Table 2-13: overview of LEKP versions and associated objectives²⁷⁵

Objectives	LEKP 1.0	LEKP 2.0	LEKP 2.1

²⁷⁵ [lokaal energie- en klimaatpact \(LEKP\) | lokaal Bestuur Vlaanderen](#)

Number of objectives	16	17	18
Site 1			
Trees	1 additional tree per inhabitant from 2021 to 2030	=	=
Planting of hedges and façade gardens	0,5 metre garden or hedge in facade with additional inhabitant from 2021 onwards by 2030		
Natural green trimmings	1 natural greenery parterre additional (at least 10 m ²) per 1000 inhabitants from 2021 to 2030		
Site 2			
Collective renovations	50 renovations energy organised collectively by 1.000 housing units between 2021 and 2030	25 fossil-free renovations among the 50 renovations collective organised in view saving energy by 1.000 housing units	Completion of at least one thematic improvement contract of district where collective renovation is facilitated before the end of 2025. One contract theme for improvement from the neighbourhood is characterised by four elements: (i) it aims to implement a renovation collective, (ii) it involves a new form of collaboration, (iii) within of an neighborhood specific, (iv) in the interests of social diversity.
Climate roundtables	/	50 dwellings per 1.000 housing units will be invited to a climate table to discuss a neighbourhood approach (with the focus on the sustainability of heat demand and synergy between	Creation this is proposal from trajectory from renovation adapted to each inhabitant where the table climate East organised, at the rate of 50

		the four yards) by the end of 2024	for 1000 households by the end of 2025
Projects cooperative Communities	1 draft cooperative/participatory renewable energy per 500 inhabitants by 2030, with a total installed capacity of 216 MW from 2021 to 2030		The doubly and acceleration from objective '1 draft cooperative/participatory renewable energy for 500 residents by 2030': at least 36 kWp instead of 18 kWp per 500 residents, of which 18 kWp for 500 residents will be completed by the end of 2025.
Community energy	fro		Render operational access to community activities from energy per 1 per per 500 by the end of 2025.
Site 3			
Shared systems	1 access point per 1 000 inhabitants for a (carbon-free) sub-system by 2030		
Recharging points	at least 1 charging station per 100 inhabitants by 2030	at least 1,5 recharging point per 100 inhabitants or 99 000 EPCs by 2030	=
Cycle lanes	1 metre of new cycle track or structurally improved per inhabitant between 2021 and 2030		
Site 4			
Debunking	Debunking of 1 m ² per inhabitant from 2021 to 2030	=	=
Rainwater harvesting	Additional 1 m ³ of rainwater collection for re-use; buffering and	=	=

General objectives			
Covenant of Mayors	Covenant of Mayors 2030 to be signed	=	=
Energy saving at local heritage level	achieve annual savings medium-sized primary energy of at least 2,09 % in its own buildings (y included infrastructure technical, excluding real estate)	achieving energy savings of 3 % per year in these buildings	
Reduction from local heritage CO2 emissions	a 40 % reduction in emissions from CO2 coming from its own buildings and technical infrastructure by 2030 compared to 2015 (this figure has been recalculated to 29,3 % with report to the year from reference 2019).	a 55 % reduction in CO2 emissions through increased clean mobility	
Replacement from lighting with from led lighting	convert all the lights public in led lighting by 2030	=	=
No renewable energy tax	increasing the uptake of renewable energy, not introduce from new taxes on installations energy renewable and delete progressively existing taxes by 2025 at the latest.	no new taxes on ELIA's electric masts and trenches.	
Policy local in heating and demolition materials	develop local heating and demolition plans	=	=

In 2022 ABB carried out the Pact Portal in collaboration with other bodies of the Flemish authorities²⁷⁶. This portal provides an overview of the achievements of local administrations for the objectives of LEKP 1.0 and 2.0, and will continue to be complemented by LEKP 2.1 in the future.

²⁷⁶General | Klimaatpactportaal lokaal portal

Tools for local administrations under the LEKP continue to be developed systematically. Three concrete initiatives serve as examples at this level:

- The 100 Wijken Platform²⁷⁷ brings together the LEKP administrations, Flemish experts and policymakers. It brings together existing knowledge and implementation methods and focuses on creating breakthroughs for an integrated (neighbourhood) approach to realise the LEKP.
- The neighbourhood renovation tool helps local administrations to identify potential and guide the implementation of collective renovations.
- The Technical Assistance Centre for Energy Communities will provide local administrations and other project initiators with personalised technical, legal and financial assistance during the start-up phase of activities that accelerate the energy transition and prevent energy poverty.

Finally, it looks at how to make the Municipalities Fund more climate-oriented. To this end, a three-year study was launched in 2021 at the Steunpunt bestuurlijke vernieuwing (Support Centre for Administrative Renewal). One of the tasks of researchers is to propose new scenarios and parameters on the basis of which this funding can be allocated to local administrations. These included explicit requests for climate criteria to be taken into account. This study will continue until 2023 with the aim of proposing concrete reform scenarios on which the next Flemish Government can rely.

Strengthening adherence to a climate-neutral society

The achievement of the objectives of the VEKP 2021-2030 does not depend solely on the commitment of the authorities and the role of all social actors and stakeholders (citizens, businesses, NGOs, etc.) should not be underestimated. The success rate of the VEKP depends on their involvement, willingness and commitment to combating the current climate change. To do so, Flanders needs a solid basis for climate projects. Communication plays a key role in creating such support and stimulating action among the population.

Support actions aim to inform and raise awareness of the causes and consequences of global warming, and to explain to citizens, businesses and organisations how they can concretely contribute to finding solutions. To strengthen ownership of the energy and climate transition, it is also necessary to put in place an enthusiastic communication that provides an overview of possible transition pathways and highlights the different benefits of the transition.

Region of Wallonia

Developing carbon capture technologies (PACE measure 3.1.4)

The Walloon **industrial sector** is characterised by massive GHG emissions from a few industrial players in the cement, hot, glass and chemical sectors. These emissions are mainly located in well-defined areas with high prevalence along the Sambre and Meuse path and in the Wallonie-Picarde Region. Another feature of Walloon emissions is that they are dominated mainly by processes of decarbonising limestone and therefore offer high purity.

The announced development of **biomethanisation** also offers unique prospects for negative emissions if CO₂ (40-45 % of the biomethanisation product) is recovered and recovered.

It is therefore essential to enable the rapid development of **carbon capture technologies** and aim for their long-term deactivation. In a transition context, the creation of e-fuels may be an interesting option.

These different options may make it possible to develop with the evolution of the cost of a tonne of CO₂. In

²⁷⁷ The 100 Wijken Platform is an initiative of the Agentschap Binnenlands Bestuur (Flemish Agency for Internal Administration), in collaboration with the innovation network De Grote verbouwing (Architecture workroom, 3E, Plant en Houtgoed and the New Drive), VVSG Netwerk Klimaat, VEKA, Team Vlaams Bouwmeester and the Environment Department.

particular, the literature reports that CO₂ transport logistics is the weak link in an integrated context: capture, transport and sequestration/use. Wallonia therefore intends to become a key player in the transport, distribution and valorisation of CO₂.

The future development of **an integrated** capture/transport/sequestration/use of CO₂ will require resources but also an overall strategic approach to avoid lost investments. The transition context via the CO₂ sector will inevitably require choices to be made, mainly as regards the future allocation of transport networks. As regards distribution, the operator (s) will be neutral, regulated and Walloon.

In addition, it is appropriate for the Walloon Region to analyse the potential of a project for sequestration of CO₂ in the Walloon subsoil. Any such projects must offer all the necessary guarantees as regards soil stability and compliance with environmental standards and must be compatible with other sectors such as geothermal energy. In the event of competition between projects, an analysis of the potential of each of them must enable priority to be given.

395	Instruct gas system operators to step up their work to identify technical needs for the transmission and distribution of CO ₂ from producers to the places of recovery. This will lead to one plan coordinated investment, taking into account production and links with export/import capacity. The feasibility of this action may be supported by the implementation of pilot projects. Particular attention will be paid to synergies with private networks. The work should include possible complementarities with road or inland waterway transport of CO ₂ .	New	—
396	Establish a legal and administrative framework to enable the development of transport, distribution and valorisation chains for CO ₂ in Wallonia. This requires clarification of the competences between federal and regional authorities, particularly in terms of transport, the removal of any remaining legislative limiting factors in the current framework and any other obstacles identified. All the provisions of this legal and administrative framework will be identified in a roadmap for the development of transport and the valorisation of CO ₂ in Wallonia. The medium/long term objective is for the Region to lead in the transport, distribution and recovery of carbon dioxide.	New	—
399	Support the development of CO ₂ capture and reuse _{projects} . This support programme will be accompanied by increased support for applied research.	New	—
776	Analyse the potential of CO ₂ sequestration _{projects} in Walloon subsoil.	New	

Digital

In its political guidelines, the European Commission identifies the green transition and the digital transformation as two inseparable and complementary challenges. The objective of this strategy is to transform **Europe** into a fair and prosperous society, with a modern resource-efficient, efficient and net-zero greenhouse gas emissions economy

by 2050 and where economic growth is decoupled from resource use.

According to the Commission, **digital technologies** (such as artificial intelligence, *cloud computing*, supercomputers, *edge Computing*, the Internet of Things) are of crucial importance to achieving the Green Deal's sustainable development goals in a wide variety of areas (climate, energy, industry, construction, mobility, food, biodiversity and pollution). They will need to be developed in order to speed up and maximise the impact of policies to combat climate change and protect the environment. Through strong digital infrastructure and artificial intelligence solutions, Europe needs to be able to make well-founded decisions, strengthen its ability to understand and address environmental challenges.

The digital sector also needs to **improve its energy consumption performance, which is a** major resource consumer. As outlined above, the challenge of the climate impact of digital technologies is important and therefore needs to be addressed. According to the 5G Expert Group²⁷⁸, ICT contributes to three types of environmental impacts: mineral consumption, indirect energy consumption related to the production process and direct electricity consumption related to the operation of the grid and terminals.

Today's challenge is to put the digital transition at the service of the green transition. The convergence of these two transitions is not only necessary to accelerate the green transition, it is also an **opportunity** to make digital players the key pillars of tomorrow's resource-efficient economy. Particular attention will be paid to supporting all audiences in order to reduce and avoid the **digital divide**.

Finally, some of these impacts are located in Belgium but others are located in other countries²⁷⁹.

Digitalising the energy and climate transition (PACE measure 3.5.7)

In the light of these various findings and challenges, a series of regional initiatives have started to emerge. In 2018, the GW adopted a **Digital Wallonia Digital** Strategy for 2019-2024. This creates a structuring framework for the deployment of the regional strategic digital vision. However, in order to meet its overall GHG reduction target of 55 % in 2030, Wallonia wants to ensure the environmental and climate impacts brought about by the opportunities of the digital transition. For example, the Digital Agency was mandated in 2021 to carry out a study on the environmental and climate impacts of digital tools²⁸⁰ with a view to proposing possible recommendations.

A central concept in this context and for future digital developments is that of '**digital sobriety**', understood here as the process of moving from an instinctive or even compulsive digital to a piloted digital, which knows to choose its directions: in view of the opportunities, but also in view of the risks. Digital governance that includes sobriety does not stand in the way of digital deployment as a developer and solution to many societal challenges, including the environmental challenge, but seeks to ensure that this deployment takes place in a sustainable and resilient manner²⁸¹.

Lastly, the Minister for Climate and Energy was asked by the Government to carry out a campaign to **raise awareness among** citizens of the (positive and negative) energy and climate impact of digital technologies.

Under this plan, the following actions will be taken to strengthen or accelerate the implementation of existing initiatives, raise public awareness, support and empower all stakeholders to neutralise the growing climate impact

²⁷⁸Summary report of 1st Group of Experts 5G of 11 February 2021

²⁷⁹Idem p. 59

²⁸⁰ <https://www.digitalwallonia.be/fr/publications/dossier-numerique-environnement-1/>

²⁸¹Report of the strategic council of Get up Wallonia to the Walloon Government, April 2021, 'Towards Multiple Prosperity and Intergenerational Equity', p. 78.

of digital technology (***Green IT***), while seizing the opportunities that digital can offer in terms of combating climate change (***IT for Green***).

370	Integrate into the <i>Digital Wallonia Digital Agenda</i> the targets for reducing CO2 (digital and digital) and digital sobriety emissions set by the European Commission	New	—
699	Raise public awareness of digital issues about the (positive and negative) energy and climate impact of digital technologies, in particular the use of mobile telecommunications; encouraging in particular the recycling of old smartphones and other connected devices	Planned	
707	Create an investment-friendly framework that incentivises a reduction in digital energy consumption. The government will encourage digital players to use or develop less energy-intensive alternatives and encourage investment in more energy-efficient infrastructure, through the introduction of a specific “low-carbon” digital budget.	Planned	
709	Support projects for the development and/or dissemination of digital tools supporting the green transition(<i>It for Green</i>), in particular those aimed at co-production of data, their reusability and cross-referencing. Promoting “Green It” and “It for Green” tools for businesses	New	
716	Promoting less energy-intensive data centres, in particular through waste heat recovery, in connection with the European framework	New	

For Action 707, discussions are ongoing to formulate proposals for concrete implementation by 2023.

Action 709 can draw inspiration from the areas of biodiversity, energy and spatial planning where co-production between researchers, professionals and amateurs has already produced results. Public authorities have an important role to play in these co-production processes by feeding them with data and expertise in its possession, such as local authorities that share the bases of the cadastre with OpenStreetMap.

In general, the achievement of the climate objectives set out in this plan requires public awareness and the involvement of all “stakeholders” in public policy-making. Digital provides new tools to facilitate the participation and contribution of a variety of actors, be they public or private, as well as interactions between them in a transparent manner.

Finally, in conjunction with other levels of government, the Walloon Region will advocate for action at international level to mitigate indirect CO2 emissions located in other countries in the context of digital development.

Framing the development of 5G (measure 3.5.8 of PACE) In view of our overall climate objectives and the energy efficiency trajectories described in Chapter 2, it is essential to analyse any technological impact in a comprehensive manner and to pay particular attention to potential **rebound effects**.

This is particularly the case for 5G. The group’s experts pointed out that “constant consumption, 5G would be more economical than 4G. In terms of absolute electricity consumption, **5G** gains would be largely reversed in the coming years, due to sustained growth in mobile data consumption. Considering energy efficiency 7 times higher, and taking a rate of growth in data traffic of 20 % per year, the gain is cancelled out in 11 years and 5 years with an annual growth of 50 %.”²⁸²

It is therefore necessary **to monitor digital climate uses and impacts** on our territory as a whole in order to frame the deployment of 5G in line with climate and energy efficiency objectives. It also involves action at the level of operators, terminals and data centres.

On 14 July 2021, the Digital Agency was entrusted with **a mission to observe the climate, environment and biodiversity impacts** of digital technologies. On 21 April 2022, the Government set out its main lines of work by the end of 2022: carrying out an annual study documenting the impact of digital practices in relation to environmental issues and making recommendations to the Walloon Government; the establishment of an enabling framework for the collection of territorial data to enrich the studies from 2023 onwards and the valorisation of initiatives.

At its meeting of 31 October 2022, the Walloon Government also approved the content of a **charter** concluded with telephone operators setting out, in particular, the region's commitments to enable the development of 5G, and those of operators to limit their energy consumption and to decarbonise them by 2050.

713	Implementing a mission to monitor the impact of technologies on the climate, the environment and biodiversity, in particular through: - carrying out an annual study documenting the impact of digital practices in relation to environmental issues and making recommendations to the Walloon Government - the establishment of an enabling framework for the collection of territorial data to enrich studies from 2023 onwards - the promotion of initiatives. The Observatory, through the Digital Agency, will also be responsible for promoting good Walloon practices in the field of Green IT and IT for Green.	in course	
402	Engaging mobile phone operators at environmental, energy and climate levels in a charter for the	in course	

²⁸²summary Report of the 1st Group of Experts 5G of 11 February 2021, p. 63

	Wallonia with a view to gradually achieving the decarbonisation of the sector in Wallonia		

Aim for sobriety by reducing energy and resource waste (PACE measure 3.5.10)

More broadly, all economic actors can work on a range of complementary levers to reduce the waste of energy and resources without compromising the quality of their products or services. Sobriety²⁸² is a preferred approach to energy transition that needs to be promoted. The following actions are designed for this purpose and will also bring economic benefits for the actors concerned:

86	Raise awareness among shops and establishments open to the public not to leave doors open during heating or air-conditioning periods	New	—
364	Continue and generalise the reduction of energy consumption and responsible consumption, in particular by: - reduction of luminaires and advertising panels lights along motorways, structural axes, and any other relevant locations under regional authority; - the extinction of interior and exterior lights at night, and intelligent lighting only when there is a passage in buildings and places managed by regional public authorities; — encouragement of municipal and provincial powers to take similar measures within the scope of their competences — the integration of limitations on lighting and the energy consumption in classified shopping centres, shops and industries through new or renewed environmental permits. This type of action does not concern individuals and cannot be at the expense of user safety.	New	

Support the emergence and implementation of projects that contribute to the objectives of the PACE (measure 3.8.1 of PACE)

Rapid systemic change is essential to effectively tackle climate change. This change must be underpinned by the introduction **of support schemes for individual and collective action**, accessible to all sections of the population and, in particular, to people in precarious situations.

Many initiatives already exist within all the structures of our society (businesses, cultural organisations, associations, agricultural federations, etc.) and highlight **the fundamental co-benefits of climate change action**: benefits for health, food, air, quality of life, etc.

Awareness raising campaigns can be an important step in change, but it is established in the literature that they

²⁸²Sobriety is defined by the IPCC as the daily set of measures and practices that avoid the demand for energy, materials, land and water while ensuring the well-being of all human beings within planetary boundaries.

alone cannot promote behavioural changes, especially beyond the end of²⁸⁴. The contributions of the humanities will therefore be mobilised in order to identify the best ways of accompanying the change of our society as a whole and to **support the transition to action** and the implementation of concrete projects.

Public support for the emergence, implementation and **deployment of concrete projects** contributing to the achievement of climate objectives is indispensable.

Particular attention will be paid to:

- Individual and collective transition pilot projects and spin-offs in Wallonia.
- Community-based initiatives, based on collective dynamics and the co-construction of projects, particularly with a view to sharing resources (electricity, heating, equipment, know-how, etc.).
- Initiatives that target or involve young people, be it support for behavioural change or support for the design of an entrepreneurial activity that supports societal transition.
- Initiatives to reduce inequalities, including gender inequalities, in the transition.

These projects will be broken down into the different thematic axes of the PACE.

The most vulnerable and/or most affected households by gender inequalities will receive particular attention in terms of support, support and information, in order to help them achieve the green transition, adapting these measures to their realities and prioritising collective action scales. These actions should contribute to reducing existing inequalities and should not create new ones.

574	Support initiatives to accompany the transition at individual and collective level, through experimentation and sharing of good practices, taking into account the individual's capabilities for action (e.g.: provision of electric bicycles for a free test period, training on self-renovation techniques, district energy sharing, etc.).	New	
767	Develop projects to support vulnerable households in the climate transition, adapting processes to household realities and prioritising collective action scales		

²⁸⁴ Axon S. *et al.* (2018) "The human factor: Classification of European community-based behaviour change initiatives, Journal of Cleaner Production, 182, 567e586.

Inform, raise awareness and training (PACE measure 3.8.2)

Several platforms, actions and campaigns to raise awareness or change behaviour exist at institutional level,²⁸³ complemented by a multitude of structures supported in addition.²⁸⁴ In order to ensure rapid access to information conducive to virtuous behaviour, the Walloon Region will ensure the integration of existing platforms, actions and public campaigns **to enable everyone to find the information** they are looking for and answering their questions in a simple and rapid manner, and will ensure that a clear guide is provided for the steps to be taken by project promoters in their situation.

Actions aimed at **energy and climate education for primary, secondary and higher school audiences** will be scaled

²⁸³ Energy desks, 'Les wallons' platform, videos 'Mini influencers', etc.

for²⁸⁴ example: IEw, GoodPlanet, Ecoconso, Transition Network, Energy smugglers, Portal

consocollaborative.com, Greencaps challenges

up. These actions will be carried out in complementarity with the initiatives foreseen in the Transversal Green Transition Plan of the Wallonia Brussels Federation. They will include information on the links between overconsumption and climate change, as well as attention to the climate change adaptation dimension.

361	Continue information and awareness-raising activities on the challenges of the climate transition, including its systemic dimension and adaptation, in primary schools and extend it to secondary and higher schools, and in the context of dual education.	Ongoing	Strategy m renovation fro
581	Continue support for the Citizens' Service and the 'Re-Climate Ambassador' programme	Ongoing	

Just transition through employment and training (PACE measure 3.8.3)

Meeting our climate objectives creates opportunities for the development of new sectors and sectors and for the creation of jobs that cannot be relocated, but also new challenges in certain sectors. The climate transition must be underpinned by investments in (new) low-carbon technology, research and development (R & D) and innovation and lead to the deployment of green and decent jobs.

Steps will be taken by regional authorities to promote gender balance in sectors where the green transition will involve the creation of new jobs (green and circular economy, digital, renewable energy, new technologies, buildings, etc.). This concern will result in gender

mainstreaming in information and awareness-raising activities aimed at informing young people, so that women feel legitimate to engage in these sectors.

Actions to support **sectors** (enterprises and workers) affected by the climate transition and to support the development of jobs likely to play an important role in the coming years will be developed (see also sections 3.2. and 3.4).

362	Improving skills development in relation to labour market needs: jobs of the future, occupations in shortage, leading occupations (STEAM), entrepreneurship and the development of a green economy	Ongoing	PRW 13
642	Supporting jobs in land and transition (jobs conducive to the repair and recycling of goods, woodworking, maintenance and renovation of heritage buildings, etc.), in particular: • Through calls for projects • Through the establishment/reinforcement of training for the development of an activity or for re-entry into employment	New	
638	Identify sectors (businesses and workers) vulnerable to the low-carbon transition (sector led to disappear, absence or inadequacy implementing technologies to reduce CO ₂ emissions) and setting up accompanying measures (training of workers with a view to reorientation, accompaniment for the implementation of emission abatement techniques, etc.)	Ongoing	
768	Include, in the communication actions relating to transition professions, the dimension of promoting gender balance in transition professions		
775	Suite decisions of the Union European Parliament, of A federal government, and of the objectives of this plan, is essential to establish a training strategy in consultation with stakeholders (businesses, trade unions, administration, etc.) in order to support the professions directly involved in the energy transition.		

Fostering sustainable practices (PACE measure 3.8.4)

The region will support sustainable practices, and particular attention will be paid to social economy initiatives rooted in the regions that are active in the transition, to soft and collective mobility, as well as to healthy, local and seasonal food.

In the same spirit, **alternative forms of habitat** (collective, light) based on solidarity, sharing of energy, resources and services, reduction of land and concretisation will be encouraged. This includes a call on the federal government to individualise citizens' rights within the social security system, particularly in order to facilitate housing shared between people who are insecure or of different generations.

578	Promote environmental certifications and official labels, both in terms of their adoption by Walloon producers/manufacturers and their knowledge by citizens (product displays, information campaign, awareness raising of greenwashing, etc.)	New	
579	Encourage experimentation on alternative habitats and lifestyles; facilitate the development of collective habitats and light habitats based on feedback from ongoing experiments	New	

Strengthening the exemplarity of public authorities (measure 3.8.5 of PACE)

Achieving our climate objectives and the acceptability of PACE measures to citizens, businesses and associations will be all the more credible **if public authorities are fully involved**.

Public authorities in general and the regional administration in particular have a fundamental role to play in **exemplary terms**, whether through the energy performance of regional administrative buildings, reducing the impact of travel, equipment or working methods²⁸⁵ of agents promoting local and vegetarian food, strengthening environmental clauses in public procurement, etc.²⁸⁶

Some levers have already been mentioned in the previous chapters. These are complemented by the following actions:

569	Strengthen the dynamics of responsible public procurement by Wallonia, in particular by: - defining standard environmental clauses for building and road works contracts; - placing in place one facilitator 'clauses	Planned	PRW 302 and 303

²⁸⁵In particular through the implementation of the Clean Vehicle Directive aimed at electrifying public fleets

²⁸⁶Furthermore, on the basis of COSTRA's decisions, in particular following the recommendations of the officials who participated in the SPW panel in autumn 2021, specific arrangements will be put in place within the SPW to facilitate the ownership of climate challenges within their mission by all SPW staff, in complementarity with the measures adopted under the Sustainable Development Plan.

	- developing tools for integrating circularity into regional public procurement; - deploying the CO2 performance scale device in Wallonia The tools will be developed with the sectors concerned, in line with the capacity of the market (availability of materials and labour) and balanced with budgetary constraints.		
3	Ensure the implementation of the role of the High Strategic Council as a guiding tool for government action with a view to contributing to the achievement of the objectives set out in the 2019-2024 Regional Policy Declaration in terms of reducing greenhouse gas emissions, improving the employment rate and reducing poverty.	Planned	
571	Encouraging healthy, diversified, sustainable and local diets by including more fruit and vegetables and vegetarian options in events organised by regional authorities and administrations or subsidised by the Region	New	
717	Strengthening Green IT approaches in regional and local administrations: both on the equipment side (setting targets on extending the duration of use, increasing the reuse rate, purchasing reconditioned equipment, etc.), and on the digital services side (responsible design); and define a common methodology for evaluating administrations' Green IT approaches, building on the existing work of stakeholders in the field.	New	
576	Continuing and generalising the reduction of energy consumption in the public service, primarily through practices and investments to reduce energy needs; while ensuring the welfare and safety of workers. Where appropriate, the measures will be concerted/negotiated with trade union representatives.	Discounted	Building Strategy 2020-2024
1	Encourage the pooling of subsidised sports infrastructure (joint partnerships/sports clubs/schools and/or supra-municipal projects)	Ongoing	PRW
580	Training regional officials on environmental and climate issues on a voluntary basis.	New	
475	Continue the development concerted with the trade unions and, where appropriate, co-construction with staff: — practices of telework on a voluntary basis in the civil service;	New	

	— decentralised co-working areas which also allow for a mix of services and functions in the same place close to home		

Supporting local climate energy policy

Community-based work is essential for the implementation of an integrated climate policy, involving the government, the population and civil society. Communal regions can play this role, ensuring that initiatives are coordinated at the level of the population basins and/or supra-municipal territories, which better reflect the existing interactions between actors and the possibilities for joint initiatives. All the actions below are always designed **with due regard for municipal autonomy**.

The actions implemented under the PACE will aim to:

- **support communal and supra-municipal territories in their efforts** to reduce greenhouse gas emissions, whether linked to communities, businesses or citizens;
- ensure that the climate challenge is taken into account across the board in municipal policies;
- support the development and implementation of actions co-built with a **variety of local actors (businesses, citizens, communities, etc.)** at municipal and/or supra-municipal level;
- encourage local authorities to **accompany societal change** through the integration of actions of exemplary public authorities and support for the population on profound changes in collective and individual behaviour.

In addition to **the interactions between existing regional and municipal actions** in the areas of mobility, energy renovation of buildings, renewable energy deployment or circular economy, mentioned in the previous chapters, specific actions for local climate policy will be undertaken.

Strengthening POLLEC drawing right (PACE measure 3.9.1)

The POLLEC project aims to provide **financial and methodological support to municipalities** which voluntarily wish to set up a local climate energy policy under the Covenant of Mayors²⁸⁷. In 2017, Wallonia formalised its support role by committing itself as regional coordinator of the Covenant of Mayors. This mission involves a number of commitments, including providing the municipalities with financial support and opportunities for drawing up and implementing an Action Plan for Sustainable Energy and Climate (PAEDC). This support has been implemented through the launch of calls for applications by Wallonia since 2012. Following the two calls made in 2020 and 2021, 233 municipalities are expected to have a sustainable energy and climate action plan.

In order **to stabilise and increase the predictability of regional support**, a structured and sustainable legislative and financial framework will be envisaged to finance local initiatives, support technically and financially the development, implementation and monitoring, as well as human resources dedicated to the implementation of the SECAPs. Citizen participation and the mobilisation of local stakeholders around the SECAPs will be encouraged. Tools to accompany societal change at local level will be made available to local authorities, so that they can activate all possible levers needed to achieve the objectives of the Covenant of Mayors.

It will also involve simplifying the **various energy and climate support mechanisms** granted to municipalities, in

The Covenant of²⁸⁷ Mayors is a European initiative enabling local and regional authorities to commit to reducing their greenhouse gas emissions by more than 40 % by 2030 and to embrace a 2050 vision based on decarbonised and climate-resilient cities with access to affordable, secure and sustainable energy.

order to ensure their readability and reduce the administrative burden for the various actors involved.

Schemes will be put in place to facilitate **access to EU and private funding** for medium-sized, large cities and supramunicipal structures, in the field of energy.

368	Assess the advisability, on the basis of the evaluation of previous calls, of adopting a structured and sustainable legislative and financial framework to provide technical and financial support for the preparation, implementation and monitoring of the SECAPs. This support will also aim to develop citizen participation and the mobilisation of local stakeholders around the SECAPs. Specific tools to accompany local acceptance of implemented measures will also be made available to local actors.	Discounted	
588	Put in place measures to support the strengthening of the link between the SECAP and the TSP, in line with the PST guiding principles, in consultation with UVCW	New	
369	Support access to European and private climate and energy funding for supra-municipal municipalities and structures; and if necessary through a supra-municipal approach.	New	
589	Increase readability and reduce the administrative burden for the various stakeholders by simplifying the various energy and climate support mechanisms granted to municipalities	Planned	DPR

Continuing the integrated policy of the City (PACE measure 3.8.2) The Walloon Government adopted on 1 April 2021 a note on the integrated policy of the city.²⁸⁸ In this context, the **action plans for eight major Walloon cities** with more than 50 000 inhabitants were approved on the basis of a budget allocation of EUR 240 million, granted under a drawing right covering the period 2021 to 2024. This amount is in addition to the grant of EUR 12,165 million granted for 2021 by the Walloon Government as part of the policy of major cities. A specific budget of EUR 40 million is added to this envelope for certain sites to be refurbished (SAR)²⁸⁹.

These **additional resources** will enable each of the cities concerned to implement an action plan, over a period of four years, aimed at revitalising its territory in connection with the regional energy renovation themes of its priority neighbourhoods (corresponding to more than 40 % of the total budget of this call), in particular in relation to the themes of social cohesion, urban mobility, vegetation and adaptation to climate change.

A budget of almost EUR 110 million will be dedicated to cities with less than 50 000 inhabitants by the end of the 2019-2024 parliamentary term. The lessons learned from this mechanism will be taken into account when

²⁸⁸ <https://henry.wallonie.be/home/communiqués--actualités/communiqués-de-presse/presses/le-Gouvernement-Approuve-les-plans-d'action-de-la-politique-integree-de-la-ville-piv.html>

²⁸⁹ Namely immovable property or sets of immovable property which have been or were intended to accommodate an activity other than dwelling and for which rehabilitation work is required (and will be subsidised)

programming the 'POLLEC' drawing right. In the context of this PACE, it will be necessary **to evaluate and, if necessary, extend** and/or modify the scheme in the longer term.

591	Ensure the implementation of the city's integrated policy system and evaluate its results with a view to a potential extension and/or modification of the framework	ongoing	

Brussels Capital Region

The Government also undertakes, within the framework of its PACE, to:

- Carry out a number of years of major action to reduce waste.
- Include household waste prevention in communication actions on the sorting of bio-waste carried out as part of the implementation of the DCP.
- Support professionals to put in place effective measures to combat food losses, via the bio-waste facilitator set up under the PRGD.
- Ensure the inclusion of criteria/measures specific to the prevention of food waste and food loss at source across the strategy: via the Cantine and Resto labels, via the training courses.
- Preserve and mobilise land with agricultural potential for agro-ecological projects (revision of the PRAS (Regional Plan d'Affectation du Sol) to support the transfer of land, raise awareness among public and private owners, etc.).
- Structuring, organising and linking supply and demand (urban and peri-urban) of 'Good Food' products via a Filière Facilitator (Good Food B2B) service.
- Developing a multifunctional logistics network (processing, distribution, meeting) which is essential for the development of the Good Food sectors, in particular via logistics hubs.
- Encourage the gradual greening of Brussels' bases, reviewing the balance between animal and plant proteins in our diets, while maintaining a nutritional balance and the diversity of food inputs, and giving preference to products of animal origin from less impactful animal husbandry models (for the climate and animal welfare, etc.).
- The call for projects entitled 'Digitalisation Transition Economy', launched by Brussels Economy and Employment in 2021, is part of the opportunities offered by the digital transition, while ensuring that it converts well with the climate transition.
- Maintain, or even increase, its support for projects combining digital and the environment, in particular through the re-edition of the call for projects entitled 'Digique & Transition Economie'.
- Disseminate innovative ideas from IT actors to the responsible digital service.
- Identify and honour the region's digital projects that have a social impact or positive environmental.
- Reduce the environmental and climate impact of regional digital tools and services throughout their life cycle.
- Implement a circular economy approach for the end of life of regional digital tools.
- Make public authorities exemplary through a regional digital equipment strategy, including digital procurement and services.
- Communicating, raising awareness and educating Brussels actors on the impact of digital technologies.
- Reduce the consumption of regional data centres (existing or to be built) by seizing the opportunity to recover the heat produced.

- Develop digital innovation pilot projects.
- Study the feasibility of extending the guarantee period for digital equipment.
- The Region also included in the 5G Order the strengthening of the environmental framework for the digital sector. The Brussels Government has required operators, and potentially other legal persons, to implement a “sustainable and responsible digital plan” which should lead to a reduction in the energy consumption of mobile networks.
- The Government has entrusted Paradigm.brussels with the task of coordinating the deployment of a responsible digital plan in all the administrations of the region.
- Carry out a diagnosis of the footprint of the information system of all Brussels public authorities by 2025, on the basis of which the public authorities’ support needs for the deployment of responsible digital technology will be identified. Paradigm will support administrations in this process.
- Include sustainable digital criteria in the Ecodynamic Enterprise Label.
- Impose the most virtuous public procurement of IT equipment in terms of environmental and social impact. Any material supplied by Paradigm will meet these criteria.
- Adopt a responsible regional digital strategy, based on the lessons learned from the responsible digital plan, to extend its conclusions to all regional actors (users, individuals, businesses, etc.) in partnership with the relevant regional administrations.
- In order to take account of the impact of digital technologies over the whole life cycle, the Government also undertakes to:
 - Allonger the duration of use of regional IT devices;
 - Supporting repackaging and repair activities by promoting local reuse of regional IT equipment and identifying the actors in the Region for the take-back and donation of IT equipment;
 - Stimulate reuse and recycling pathways for non-reusable equipment.
- To develop regional knowledge by proposing methods for quantifying the environmental impacts of digital technologies and by systematising their quantification.
- Measuring regional progress on sustainable digital. Paradigm will develop a set of indicators on responsible digital technology and will submit an annual progress report to the Government.

In order to achieve its decarbonisation objective, the government shall take the following decisions on:

Involvement of local authorities:

- A call for projects which is a continuation of calls for projects for municipalities proposed by Bruxelles Environnement for several years. It is structured around two strands of action:
 - The first strand offers support to municipalities wishing to be part of an ambitious climate transition dynamic and develop their own strategy at regional level.
 - The second component consists of integrating climate-related environmental measures into existing municipal plans.
- Perpetuating existing tools for supporting the municipal authorities and doing so change over time in line with the (new) needs identified, such as the grouped renovation of buildings by district. If necessary, the Government will strengthen the resources available for this support (in particular the facilitators);
- Perpetuating and, if necessary, strengthening the role of the “common” facilitator who frame the programme climate actions;
- Approaching and motivating all municipalities, so that they are all equipped a climate action programme by 2024 that is consistent with regional climate and energy targets;
- Bring all the region’s support to local authorities into line by 2030 with

regional air, climate and energy targets.

Governance:

- Further develop participatory democracy to involve the citizen in developing climate action and setting up the Citizens' Climate Assembly;
- In line with the Climate Ordinance, develop a long-term 30-year strategy to: in particular, to clarify the sectoral distribution of direct and indirect greenhouse gas emission reduction targets, including the work of the Citizens' Assembly for Climate;
- Continue its support for the deployment of transitional citizens' initiatives, including through the 'Inspirons le Quartier' scheme, also reaching out to audiences that are currently more remote from the spaces for participation, in particular young people;
- Strengthen collaboration with the various Brussels public services on participation and consultation aspects. Perspective.Brussels Participation Service will be invited to contribute to the consultation on a number of actions and priorities related to climate policies;
- Informing and diversifying messages and media for good audiences and broad understanding of measures and actions:
 - Pay particular attention to the most vulnerable audiences;
 - Strengthen awareness-raising and information campaigns for young people;
 - Specific awareness-raising activities in secondary schools, primarily technical and vocational;
 - Collaboration with structures active in interculturality.
- Supporting the capacity of transition actors to act;
- Strengthening dialogue with the whole of the Brussels population around objectives common and a common strategy, and building a positive, inclusive and engaging narrative, with hope to avoid the pitfalls of reduction, moralisation and guilt in messages. To this end, Brussels Environment will be accompanied by experts;
- Develop a comprehensive awareness and experimentation strategy to identify and relying on grassroots actors as multipliers;
- In addition to the exemplary role of public authorities throughout the Plan, support and disseminating citizens 'and businesses' initiatives on climate change as a source of inspiration;
- Perpetuating the Climate Steering Committee by renaming it as a Regional Climate Committee, bringing together each government minister – or his representative – and chaired by the Minister responsible for Climate Affairs. The Committee is responsible for checking the proper implementation of the actions included in this PACE and the adequacy of the resources provided for. It is the place to decide on the region's cross-cutting climate actions and makes it possible to assess its progress;
- Create an interdisciplinary Climate Cell bringing together the public bodies of the RBC. This unit, composed of Brussels administrations and bodies of public interest, is managed by Bruxelles Environnement;
- Evaluate three years after the establishment of the Climate Expert Committee if it is necessary to specify its missions, in particular on the need to identify in its annual report the public actions that would fail to achieve the region's climate objectives and to assess the 'loss of revenue' in terms of GHG emissions and pollutants;
- Evaluate after the Climate Day 2023, which in accordance with the Climate Ordinance is held at most no later than 15 June, if the relevant provisions of the Climate Ordinance should be specified, in particular on the need for each Minister of Government to report on the progress of the actions he/she has undertaken to contribute to the regional climate objectives;
- Strengthen the integration of the climate dimension into the missions of each minister, in the notes and guidance letters of each public body and the objectives assigned to the managing officials of those

bodies. To this end, tools are developed to monitor them, in particular through the revision of the organic order laying down the provisions applicable to the budget, accounting and control;

- Ensure consistency between all plans, strategies, regulations and other instruments (e.g.: SRTE, RRU, PUL, PRDD, etc.) developed by the Region to meet and strengthen regional climate objectives.

i. Where appropriate, regional cooperation in this field

ii. Without prejudice to the applicability of State aid rules, State aid funding measures at national level, including Union support and the use of Union funds, where applicable.

Region Walloon

A large part of the measures are either already in implementation or foreseen in other Walloon plans and policies. For new actions, which run over several legislatures, the budgetary impact will be confirmed when they are operational. In all cases where possible, **diversification of funding methods and sources** will be sought.

Each year the Walloon Government adopts its budget and carries out part of the measures and measures in this plan through it. Amounts varying from year to year according to budgetary constraints and general political trade-offs and are therefore not specified below.

In addition, the Walloon Government has adopted the **Walloon Recovery Plan (PRW)**, which devotes substantial budgets through a series of projects in all regional competences for the period 2022-2026. The PRW is particularly mobilised under this plan. Indications of overall amounts are given, bearing in mind that the precise calibration of projects leads to variations in the specific budgets.

Measures to **exit fossil fuels** and support the decarbonisation of households will be financed in particular by the PRW until 2026 and other budgetary sources in the region. In addition, the Social Climate Fund (SCF), which could also be a relay for additional funding from 2026 onwards. The possible funding from this source remains to be determined.

The deployment of new technologies (hydrogen and carbon capture) is also funded by the PRW or the Just Transition Fund. The **transition to more sustainable mobility** requires substantial funding from the Walloon budget, in particular through the Active Common and Intermodality Mobility Investment Plan (PIMACI 2022-2024), the Infrastructure and Mobility for All Plan (PIMPT 2020-2026) (which includes an additional “active modes” envelope), the RAVEL envelope, etc. Some measures are also financed under the PRW, including the following projects, for a public budget of EUR 585 million:

- PRW81: Implementing Mobipoles
- PRW82: Step up the path towards free TEC for 18-24 year olds, 65-year-olds and + and the beneficiaries of the increased intervention
- PRW83: Enhancing the public transport offer and its attractiveness
- PRW88: Implementing Weight in Motion
- PRW90: Develop several bike corridors
- PRW93: Implement a new WACY3 call for projects
- PRW80: Encourage car sharing, relay car parks and the use of buses
- PRW94: Introducing dynamic speeds: launch of pilot actions

- PRW 91: Developing and deploying charging points. European funding also complements the Walloon budget, in particular through the Recovery and Resilience Plan, the ERDF (measure 13 on sustainable local and regional mobility) and Interreg.

SOFICO also finances certain infrastructures (structuring network, certain lock sites, the Charleroi BHNS, etc.).

Finally, the budgets of other levels of government also contribute to financing mobility/transport policies:

- Municipalities (the bulk of the viary network falling under municipal powers).
- Provinces (through some mobility skills)
- The Federal Government (in particular as regards the railway sector)

The sources of financing related to **renewable energy** and the decarbonisation of **companies** and **buildings** are described in Sections 3.1.2 and 3.2.

3.1.2. Renewables

The guiding thread of renewable energy policy in Belgium is the commitment to profitability, taking into account the various geographical, social and economic and technological potentials and the mobilisation of available sources in their diversity and complementarity.

Competences are divided between federal and regional authorities, but interactions between regional and federal authorities remain.

Belgium signed the non-binding declaration on international public support for the clean energy transition (2021), declaring its commitment to make the transition to sustainable energy a priority and to support it by all possible means²⁹².

I. Policies and measures to achieve the national contribution to the Union's binding renewable energy target for 2030 and to the pathways referred to in Article 4(a) (2) and, where applicable or available, the elements listed in point 2.1.2 of this Annex, including sector-specific or technology-specific measures.

Federal State

Offshore

Strengthening offshore capacity in the North Sea

- Objective Existing/Update

By 2030, the contribution of offshore wind to Belgium's renewable energy mix will be between 5,4 and 5.8 GW in terms of installed capacity.

- Priority Measure/Key Action/Flagship Actions (description)

The Marine Spatial Development Plan (PAEM) 2020-2026 set aside an additional area of 281 km² (divided into three zones) in the Belgian North Sea for the construction and operation of renewable energy production and storage facilities and electricity transmission facilities. The Law of 12 May 2019 lays down the general principles of a competitive tendering procedure for the award of operating concessions.

In the space provided for by the PAEM, a layout plan has already been drawn up.

- Flagship actions
/

- Other measures
/

- Operationalisation (implementation)

Implementation of the Law of 12 May 2019: the location, size and number of parcels to be put into competition will be determined by ministerial order (the main conclusions of the preliminary studies are published in the annex to this order). The preliminary studies must be completed by 2024.

²⁹² Declaration on International Public Support for the Clean Energy Transition, ukcop26.org, November 04, 2021. <https://ukcop26.org/statement-on-international-public-support-for-the-clean-energy-transitional/>

These preliminary studies should map the environmental conditions of the Princess Elisabeth area in the form of detailed information on the surface of the seabed, the geological subsoil and the (possible) presence of objects. By making this information available to potential tenderers (potential developers), the State hopes to reduce significantly the risk and associated costs for the developer.

In addition, transmission system components and interconnections will be built by the system operator.

In addition, a Royal Decree will be issued which will determine, inter alia, the conditions and criteria for the eligibility and award of the concession in the field.

- Impact

GHG impact

The Roadmap is expected to save 6 300 kt_{CO2}-eq in the period 2026-2030 and 47 250 kt_{CO2}-eq in the period 2031-2040. These figures correspond to a capacity of 3.15 GW taking into account the recent implementation schedule.

Energy impact

The measure is expected to generate an average of 13,6-15.1 TWh of electricity per year from 2026 onwards.

- Budget
/

Renewable energy in the transport sector

CO₂ neutral fuels (biofuels, recycled fossil fuels, e-fuels and H₂) and renewable electricity:

Promote and regulate renewable fuels such as biofuels (taking into account a global policy based on organic^{AE} products), recycled carbon fuels, Renewable Fuels of Non-Biological Origins and renewable electricity.

The share of biodiesel produced from food and feed crops that can contribute to compliance will amount to 7 % of all diesel consumption in 2023 (maximum allowed by the 2th Renewable Energy Directive) and will be progressively reduced as follows:

- 2024: 6 %
- 2025: 5 %
- 2030: 2.5 %

The share of bioethanol and gaseous fuels produced from food and feed crops that can contribute to compliance will amount to 7 % in 2023 of the total consumption of petrol and gaseous fuels (maximum allowed by the 2th Renewable Energy Directive) and will be progressively reduced as follows:

- 2024 6,5 %
- 2027 5,5 %
- 2030 4,5 %

In addition, the contribution from advanced biofuels shall be at least 4.2 % of the total quantity of liquid and gaseous automotive fuels released for consumption in the calendar year by 2030.

In order to contribute to the development of biofuels produced on the basis of the feedstocks listed in Annex IV to the Royal Decree of 16 July 2014, the rules on the approval and energy share of Category A, B and C biofuels of processed biomass must be submitted to the Council of Ministers within 6 months of the final publication of the delegated act on co- processing by the European Commission.

- Objective Existing/Update

Increase the share of renewable energy in the transport sector, in line with the transposition into Belgian law of the EU Renewable Energy Directive (RED II and its revision). This should encourage the development of renewable fuels and electrification.

- Priority Measure/Key Action/Flagship Actions (description)

The introduction of a new legal framework to promote renewable energy in transport and achieve the targets set in this regard. This legal framework will make it possible to achieve the targets in a cost-effective manner (through a registry allowing the exchange of renewable energy units) and should lead to the promotion of technologies that can contribute to achieving the 2050 net zero emissions target. Renewable energy targets in the transport sector can be adapted to the evolution of European transport policy.

- Phares/

- Other measures/

- Operationalisation (implementation)

Preparation and finalisation of the new legal framework. Drawing up the Royal Decrees (Royal Decrees) necessary for the establishment and proper functioning of the register.

Progress in implementation

The preliminary draft law was approved at first reading by the Council of Ministers on 20 July and 10 November 2022. The regions were involved at the Conciliation Committee of 30 November 2022. Adjustments to the preliminary draft law following the opinion of the Council of State were approved by the Council of Ministers on 31 March 2023.

- Impact

GHG impact

Requiring all oil companies and all suppliers of gaseous fuels to the transport sector to include a share of energy from renewable sources in the total consumption of the transport sector will reduce emissions in this sector in proportion to the amount of fuel consumed.

Energy impact

Facilitating the energy transition to renewable sources in the transport sector.

Other effects sought

Diversifying energy supply in the transport sector.

- Budget/

Furthermore, in the context of the transposition of REDII, a greater contribution of other forms of renewable energy to transport objectives is envisaged, as well as a gradual reduction in the contribution of first-generation biofuels. A registry will be set up to enable the accounting of renewable energy units for the transport sector and thus achieve a transition from fossil fuels to renewable electricity and molecules.

As stipulated in the NECP 2021-2030, the Federal Government is conducting a biennial study to assess the technical feasibility of the blending rate, the availability of raw materials, the environmental integrity and potential conflicts of use, the availability of advanced fuels, including recycled carbon fuels, and technological developments in the European market, the availability of alternative renewable energy sources and the cost to consumers.

Once the final results of the ongoing negotiations on the revision of the RED and the ongoing negotiations on the FuelEU Aviation and Refuel Maritime Regulations proposals are finalised, the federal government will transpose the different provisions of these three pieces of legislation that fall within its remit.

As Belgium hosts the second largest bunkering port for international maritime transport, the energy demand of international maritime transport in Belgium is almost equal to that of the road and rail transport sectors. The ratio is 95 % for Belgium, compared to 16 % for the EU average.

This means that, on the one hand, the demand for renewable energy that can (or may not) be expected from the international maritime transport sector and, on the other hand, the inclusion (partial or not) of the international maritime transport sector in the targets to be met by Belgium as regards the use of renewable energy in the transport sector, will have a new significant impact on Belgium.

Moreover, given the atypical situation of the relative energy demand of the international maritime transport sector compared to other transport sectors, and the fact that it is very different from the EU average, particular attention will have to be paid to the possible spill-over effects on the level playing field and competitiveness in other sectors or on the purchasing power of households.

When implementing and applying these new Fitfor55 package texts, it will also be examined, within the remit of the federal government and without prejudging the agreements still to be concluded between the federal government and the regions, whether certain elements (e.g. the likely (partial) inclusion of international maritime transport in the transport sub-objective of the RED) could best be integrated in close consultation with, for example, the Netherlands and/or other Member States. It will take into account, inter alia, policy lessons learned, studies carried out in the context of the implementation of the current NECP, and evaluations of relevant literature and best practices from other Member States.

Flemish Region

Solaire plan

On 27 November 2019, the Flemish Government approved the Vision Note for the 2025 Solaire Plan. In this plan, the Flemish Government aims to increase installed solar energy capacity to 6.7 GW by 2030. In the updated VEKP, this target is increased to 8.9 GW.

The 2025 Solaire Plan contains 15 actions. The Solaire Plan focuses on actions relating to financial support, improved network integration, restitution compensation, exemplary role of public authorities, research, communication and agreements on the monitoring of the plan.

The 2025 Solaire Plan contains numerous **normative, financial and accompanying** measures to promote PV growth in Flanders, in line with the 2030 targets. The Solaire Plan is an evolving action plan in which the actions carried out during the implementation of the plan are abandoned and new actions that are necessary to achieve the policy objective are added. The plan also includes an evaluation of the measures.

The concrete action points of the 2025 Solaire Plan are as follows:

- Extension of the call for investment aid for medium-size photovoltaic wind energy (see below: cross-cutting measures).
- Lower threshold for network study in connection with PV placement from 10 to 40 kW.
- Investment aid for small photovoltaic installations up to 10 kW and possibility to use MijnVerbouwLening.
- Update of the solar card calculations.
- Optimisation of the use of PV's potential.
- Improved integration of PV energy into the energy market and grid operation.
- As an example of public bodies.
- Asbestos removal premium combined with solar panels.
- Establishment of a research programme to support the objectives of the Solaire Plan.

Following the approval of the Solaire Plan, the Flemish Government decided to increase the annual solar energy ambition for 2022 and 2023 from 300 MW to 450 MW. As part of this VEKP, it was decided to add a growth of 500 MW between 2024 and 2030.

The Flemish Government has also decided to introduce a **PV obligation on the roofs of large electricity consumers**. Large electricity consumers with an annual consumption of more than 1 GWh and buildings of public bodies with a consumption of more than 250 MWh will be required to install a minimum capacity in solar panels. This capacity has been calculated in such a way that, at the beginning of the obligation in 2025, at least 10 % of the total surface area of the roof of the building is occupied, the obligation being set at a ratio of 1 kWc of photovoltaic power to be installed per 8m² of horizontal roof area. These 10 % will gradually increase: in 2030, it will be 15 % and in 2035 it will be 20 %. For public bodies, the capture limit from which the obligation will apply will be reduced to 100 MWh from 2030.

Eolien Plan

On 27 November 2019, the Flemish Government approved the Vision Note on the 2025 Eolien Plan. In this note, the Flemish Government aims to increase installed onshore wind energy capacity to 2.5 GW by 2030. This target is increased to 2.642 GW in this updated plan.

The 2025 Eolien Plan includes 17 actions: actions on technical and financial aspects, environmental aspects, digitalisation and communication, and actions on the organisation of the functioning of the policy.

The 2025 Eolien Plan focuses on:

- Facilitating the installation of new wind turbines by increasing the scope for location in space and by reducing and, where possible, removing administrative or legal barriers to the realisation of wind turbine projects.
- Increasing the capacity of existing wind farms and maximising the value of technological and economic opportunities.

Concrete action points include:

- The empowerment of local authorities and the development of pilot projects with large wind turbines on public land.
- Target certain areas for wind energy, such as around motorways (E40) and do so in symbiosis with the aviation activities present.
- Maximising energy when restarting existing wind projects.
- Setting up research projects in which the experience gained in the context of off-shore projects are also used in on-shore projects.
- Develop a Flemish vision that provides sufficient space for wind energy expansion in Flanders.
- Optimise the authorisation framework for wind turbines.
- Awareness-raising actions to increase support for wind energy.

Following the approval of the 2025 Eolien Plan, the Flemish Government decided to take additional measures, namely to facilitate the installation of wind turbines in high landscape value agricultural areas and in green zones (buffer zones). In addition, an EIR procedure will be launched for green areas with non-qualitative nature value to assess the extent to which wind turbines can also be located there.

The 2025 Eolien Plan is a rolling action plan in which the actions carried out during the implementation of the plan are abandoned and new actions that are necessary to achieve the policy objective are added. The plan also aims to monitor profitability for projects after 2025 and explore with relevant stakeholders the potential of onshore wind energy in 2040 and 2050 in Flanders.

Sealant plan

The Vision Note on the 2025 Heat Plan was approved by the Flemish Government on 10 December 2021. The 2025 Heat Plan contains 26 measures to move towards sustainable heating and greening of energy carriers. The Heat Plan focuses on actions relating to financial support and the optimisation of the effectiveness of the support, various actions to encourage sustainable heating, the minimum share of renewable energy, heating networks, local heat plans, research actions, communication and subsequent monitoring of the plan.

Concrete action points include:

- Annual call for projects on green heat, district heating and waste heat.
- Heat connection premium for existing dwellings.
- Optimisation of support measures for green heat.
- Fossil-free heating and promotion of green heat in new and existing buildings.
- Introduction of a minimum share of renewable energy for existing large non-residential buildings.
- As an example of public bodies.
- Establishment of a research programme to support the objectives of the Heat Plan.
- Encourage the development of district heating networks.
- Communication and digitalisation of data.
- Comprehensive assessment of the efficiency potential for heating and cooling and assessment of the potential of energy from renewable sources and the use of waste heat and cooling in the heating and cooling sector (cf. Warmtekaart).
- Support local administrations in the development of local alarms plans.

The 2025 Heat Plan is designed as a rolling action plan in which the actions carried out during the implementation of the plan are abandoned and new actions that are necessary to achieve the policy objective are added. In order to monitor and implement the actions of the Heat Plan and to detect possible new measures, collaboration has been put in place within the Flemish Authority going beyond the policy areas.

Other renewable energy measures:

7. Flemish taxation

Flemish taxation also provides incentives for the growth of renewable energy. That tax provides, in particular, for relaxation of the criteria for exemption from property tax for State-owned buildings in the case of the installation of renewable energy technologies. With the Winwin loan, the Flemish Government encourages individuals to grant a subordinated loan to small and medium-sized enterprises. Since 2017, cooperatives engaged in renewable energy have also been able to benefit from it. The introduction of the Vriendenaandeel (early 2021) created new opportunities for (small) shareholders and co-operators.

8. Support for the certificate for electricity from renewable sources

The support for the green electricity certificate is updated to avoid excessive subsidisation. The calculations for the unprofitable part for wind and PV take into account market-based electricity price parameters. For new projects, wind and photovoltaic aid will be completely phased out by 2025 and aid for biogas will be reduced to a maximum of EUR 54 per MWh.

9. Removing barriers

The procedures for setting up renewable energy production facilities are accelerated and clarified. The decree on the environmental permit is introduced, which involves a simultaneous decision on the repurposing or modification of town planning requirements and a permit for a project. In order to

clarify spatial possibilities for the installation of (renewable) energy installations, adequate attention is given to “space for energy” in the framework of the Space Policy Plan for Flanders (BRV).

Region Walloon

The massivedeployment of renewable energy is becoming increasingly evident as an urgent need both to help reduce our greenhouse gas emissions, but also to increase our energy independence and to help deliver affordable energy to our citizens. This effort contributes directly to the three pillars of European energy policy, which is to provide citizens and businesses with sustainable, secure and affordable energy.

In order to continue implementing this deployment, several dimensions (acceptance, support, quality) and several vectors (electricity, heat, biomass, etc.) need to be addressed in parallel, which are included in this chapter. Low-carbon hydrogen has been addressed in the previous chapter

In addition to the actions listed below, all actions listed in this Chapter 3.1.2. (*Renewable energy*) contributes to the achievement of renewable objectives.

In addition, actions related to the internal market (electricity system adequacy and flexibility of the energy system in relation to renewable energy production), as well as actions to improve energy efficiency (reduction of consumption) also contribute to the achievement of renewable objectives.

Scaling up funding in a structural and differentiated way (PACE 3.2.1)

The overall objective of doubling renewable energy production by 2030 set out in Chapter 2 requires the continuation of structural financing for the sectors concerned. It will be adapted by sector on the basis, in particular, of their level of profitability, their costs and the degree and/or potential of maturity of the technology. There is **a need to harmonise, simplify and make the financing of renewable energy more accessible**, while opening up the possibility of diversifying renewable energy and ensuring predictability for sectors.

As regards **green electricity**, Wallonia will continue to provide support in the short term via the green certificates mechanism, which should allow for appropriate support while avoiding deadweight effects. The mechanism for calculating the rate of granting green certificates is being revised in order to be more responsive to changes in market conditions through the CPMA methodology. This allows the producer to have the fullest calculated support, and ensures that Wallonia offers only the necessary support for the deployment of renewables.

In the medium term, a more in-depth revision of the green certificate mechanism must be envisaged in order to maintain, in line with the CPMA, **sustainable financing** that takes better account of the economic reality of the sectors. The aim is also to adapt the system to make it more resilient to cyclical developments.

Calls for projects will be launched for specific technologies. In addition, other specific complementary mechanisms to diversify the forms and sources of financing of the energy transition may be considered.

At the level of **renewable heat**, heat financing mechanisms should be reviewed and extended into a single globalised system. For households, a bonus scheme **for citizens will continue to** be needed as long as the investment remains more expensive than the fossil solution, and as accompanying the exit of fossil heaters described in Chapter 3.1. Action 284

below confirms the sustainability of existing premiums and its extension to renewable heating systems not yet covered.

259	Improve the financing mechanism for renewable electricity, while adapting it to each sector according to its profitability, costs, degree and/or potential for maturity of the technology	New	
371	Diversify sources and mechanisms for financing the energy transition through ad hoc mechanisms compatible with support systems.	New	
264	Set up mechanisms for calls for projects for certain sectors (medium and large electricity or heat installations) with a view to putting them into competition and seeking to achieve optimum technical and economic conditions.	Discounted	PWEC/PRW (47, 48, 69, 79)
281	Implement the rapid development of district heating networks and, where necessary, provide support for connection to a district heating network. This financing mechanism will have to be adapted to the long lifespan of heat network/co-generation equipment and may be public, private or public-private.	Discounted	Heat strategy 11
284	Maintain and adapt the premium scheme specifically aimed at residential consumers for the deployment of small-scale renewable heat installations not currently covered, including efficient and non-reversible air/air heat pumps and geothermal drilling (closed systems)	Discounted	PWEC

Removing administrative and legal barriers to the rapid development of renewable electricity production pathways (PACE 3.2.2)

A key focus for the rapid deployment of renewables is **the removal of barriers that are neither financial nor technical** in order to facilitate and accelerate investment in renewable electricity, and the concrete realisation of projects.

To this end, substantial work has been carried out to adapt the *Eolienica Pax* and, in particular, to remove the legal uncertainty surrounding **wind turbines**. In the context of a climate emergency and the energy price crisis, the question of European and, a fortiori, Walloon energy autonomy is becoming crucial and, as Repower EU demands, the question of energy independence must be placed as an objective of general interest.

The measures of *Pax Eolienica II*, adopted by the Government on 25 October 2022, aim to increase wind production potential in the Walloon Region in order to achieve annual production of around 6.200 GWh in 2030 and contribute to the region's climate objectives for 2030 and 2050.

The measures of Pax Eolienica II are structured around the following themes²⁹³:

1. Increasing wind potential:
 - Measure 1: Determination of the wind generation target
 - Measure 2: Revision of the reference framework
2. Reduce the total duration of the procedure leading to the final granting of permits and facilitate wind deployment
 - Measure 3: Anticipating Repower EU in a territorial planning framework and granting permits adapted to wind energy issues
 - Measure 4 Setting acceptable risk standards according to what is to be protected
 - Measure 5: Facilitating the connection of new wind power generation
 - Measure 6: Implement offsets, including those favourable to biodiversity
 - Measure 7: Support for the reform of coordinated laws on the Council of State
3. De facto enable the installation of best available technologies
 - Measure 8: Application of the Rochdale envelope
 - Measure 9: Extending the duration of planning permission
4. Improve the social acceptability of wind projects and the involvement of municipalities and citizens in them
 - Measure 10: Energy Sharing
 - Measure 11: Imposing the minimum participation approach citizen and municipal authority in the frame of reference
 - Measure 12: Establishment of facilitation for local authorities and the active citizenship
 - Measure 13: Promotion of Walloon companies active throughout the wind energy production value chain
5. Measurements of the initial Eolienica Pax in progress
 - Measure 14: Relieving civil and military aviation constraints
 - Measure 15: Adaptation of the methodology for calculating the rate of granting certificates
Greens
 - Measure 16: Wind monitoring
 - Measure 17: Quarterly reporting

On the **PV** side, it is necessary to facilitate the establishment of large installations, and to increase best practices and projects in all possible photovoltaic niches. The acceleration of PV development will also be achieved through mandatory renewable in new buildings (as provided for in the EC

²⁹³For details of these measures and the text of Pax Eolienica II, reference is made to the decision of the Walloon Government of 25 October 2022.

Directive 2018/2001), the facilitation of procedures for the purchase of panels or the introduction of alternative financing for municipalities, public buildings, hospitals, etc.

245	Implement the measures of the new Pax Eolienica	Discounted	PAX Eolienica
253	Launch pilot or exemplary projects for certain photovoltaic niches	Discounted	PWEC/S3/PRW 205
254	Develop an indicative guide to good practice for the photovoltaic sector (large installations)	New	
770	Implement the renewable obligation in new buildings and major renovations in line with EC Directive 2018/2001	New	
771	Facilitate the procedures for purchasing and placing PV panels for municipalities, public buildings, hospitals, etc.	New	
772	Setting up alternative financing methods for installing PV panels for municipalities, public buildings, hospitals, etc.	New	

Removing barriers to the development of renewable heat (PACE 3.2.3)

While renewable electricity has been structurally supported for a long time and a huge potential lies in the conversion of fossil heat to renewable energy, support for renewable heat (and possibly cooling) remains fragmented. It is therefore essential to **implement an accelerated switch to renewable heat**, whether through individual or collective installations, in particular with strong support for district heating.

294 Furthermore, the EPBD currently under negotiation provides for a solar obligation on the roofs of new buildings.

In addition to the overall funding mentioned above, the aim is **to align regulatory frameworks** for the development of renewable heat in residential, tertiary and industry, and to consider specific support where appropriate.

On the **other hand, the aim is to eliminate technical and legal barriers** to the development of renewable heat, in particular as regards geothermal (deep and shallow) geothermal energy and district heating networks.

275	Analyse the value of developing solar thermal installations supplying district heating networks and, where appropriate, take the necessary measures to develop them	Planned	Heat strategy 27
278	Promoting sustainable energy sources for the heating and cooling needs of existing tertiary buildings, in particular through third-party financing	New	—
286	Analyses the relevance and impact of establishing a system of safeguards for deep geothermal energy	Planned (2023)	PwEC/Heat Strategy 20
288	Put in place an effective monitoring system for heat networks	Planned	Heat strategy 23
289	Modify the permit system for open systems with shallow geothermal energy	Ongoing	Heat strategy 19
773	Launch calls for targeted projects for the establishment of district heating networks in the vicinity of waste heat sites, in particular in relation to district renovation projects	Discounted	PRW
774	Enable DSOs to take part in the task of district heating system operator compatible with their regulated functions	New	

Brussels Capital Region

The Government also undertakes, within the framework of its PACE, to:

- Amend the PEF (Primary Energy Factor) value of electricity to align it with the European value set by delegated act (which has just been revised from 2,5 to 1,9).
- Reach the 1 250 GWh renewable threshold in 2030 by combining intra-Brussels and extra-muros efforts.
- In order to achieve the ambition of climate neutrality by 2050, the development of renewable energy requires a gradual phase-out of uses for fossil-based applications. The Government undertakes to make representations to the Federal Authority for the regulation of advertising of equipment powered by fossil energy.
- Support pilot and innovative projects for the deployment of renewable energy in heating and cooling production in renovation projects through the Renolab ID programme.
- Instruct the Technical Committee of the Renolution Alliance to produce a factsheet setting out technical guidelines for reducing the noise and urban nuisance of heat pumps.

- Require the EPB expert to study the optimisation of solar energy production potential on the basis of the site's solar irradiation, in order to allow for the subsequent installation of cost-effective solar technologies, for projects consisting of one or more new plants, which are assimilated to new or heavily renovated.
- Require the installation of an adequate solar system (photovoltaic or thermal) in new public buildings as of 31 December, 2026.
- Study the extension of renewable heating networks.
- Consider carrying out a technical and economic feasibility study for the installation of a district or major building project.
- Draw up and update the Article 14 study by introducing a zonal vision of heat supply and renewable heating networks, including for the potential of waste heat.
- Implement the most relevant recommendations of the Article 14 study.
- Structure, where necessary, support mechanism (s) for renewable heat (coaching and financing), including the addition of a premium for RES heat networks (renewable energy source).
- Increase the visibility of the sustainable building facilitator service for the development of district heating networks and gradually move towards an integrated "one Stop Shop" service.
- Electricity supplied to all buildings, public equipment, as well as those in the public space (advertising panel managers, scooters or e-bikes, etc.) is 100 % renewable.
- Define more precisely the perimeter of public authorities and public facilities or facilities in public spaces that will be covered by the 100 % renewable electricity supply obligation.
- Provide an inventory of the supply of renewable electricity (excluding natural gas cogeneration) to the buildings or equipment identified in this inventory.
- Adapt regional legislation to require the supply of electricity exclusively from renewable sources in these buildings and equipment.
- Develop a support tool for regional or regional authorities to optimise their electricity production and consumption by mobilising the opportunities offered by sharing, peer-to-peer trading and selling behind the meter.
- From 2023 onwards, with the involvement of the stakeholders concerned, consider how to make optimal use of the injection from the SolarClick installations owned by Bruxelles Environnement.
- In the NECP, the Government committed itself to developing a strategy for investing in renewable electricity outside the regional territory with the aim of complementing local production of energy from renewable sources.
- Ask Brugel to study by the end of September 2023 the conditions for the success of the rapid introduction of favourable electric pricing for heating (heating and domestic hot water) heating by heat pumps.
- The amendment to the Electricity Market Ordinance (Electricity Ordinance) thus establishes a legislative framework for the sharing (in particular within a co-ownership with tenants), the exchange (peer-to-peer) and the sale of self-generated electricity (which does not pass through the grid and circulate within a building).
- The revision of the Gas Market Ordinance (Gas Ordinance) introduces a traceability mechanism for renewable gas: guarantee of origin. This mechanism will be implemented by amending the BCR Government Decree on the promotion of green electricity (which is expected to take place in the first half of 2022). This will make the biogas market more

transparent and give suppliers the opportunity to enhance the renewable nature of the gas consumed.

- Set up in early 2022 an accompanying service to encourage the development of energy communities, the sharing, trading and sale of electricity produced from renewable sources:
 - support households' access to locally produced renewable electricity, with particular attention to households that do not own their roof and vulnerable households;
 - develop a specific strategy and tools for energy sharing in collective and public housing, including social housing.
- The Brussels NECP foresees an extension of the CV system for the period 2021-2030, but also establishes that the end of life of the CV system should be considered in its own right in order to avoid uncontrolled evolution or collapse of the system.

II. Where appropriate, specific regional cooperation measures and, on an optional basis, the estimation of excess production of energy from renewable sources that could be transferred to other Member States to reach the national contribution and pathways referred to in Section 2.1.2.

Federal State

North Sea II Summit, 24 April 2023:

The Esbjerg Declaration of 18 May 2022 – the outcome of the first North Sea Summit – aimed to make the North Sea the new 'green power plant for Europe'. In order to maintain momentum, and stressing that energy security and the fight against climate change are crucial for Europe, there is a need to further strengthen cooperation in the North Sea. Belgium's ambition is to work with Denmark, Germany, the Netherlands, France, Ireland, the United Kingdom, Norway and Luxembourg to produce more affordable, secure and sustainable energy in the North Sea.

With this in mind, the second North Sea Summit will take place on 24 April 2023, this time in Ostend. Two declarations will be signed again, significantly raising the common ambitions to 120 GW of offshore wind by 2030 and at least 300 GW by 2050. This ambition will be complemented by 30 GW of renewable hydrogen production capacity by 2030. Heads of State and Government, and energy ministers of the respective participants will also hold in-depth discussions with industry representatives on topics such as critical raw materials, competitiveness, coordination, network infrastructure, innovation, critical infrastructure and accelerating deployment. The results of this North Sea Summit will be integrated into the NSEC and the Belgian Presidency of the EU in 2024.

The potential for regional cooperation in the context of MOG/North Sea Energy Cooperation (NSEC)/international waters with other countries bordering the North Sea will be further explored:

- With neighbouring countries, engage in bilateral and regional cooperation for the development of joint offshore energy production projects, in particular in the context of the NSEC.
- Develop renewable energy production beyond national borders, including related interconnection capacities.

Region Wallonia

The development of renewable energy in Wallonia is the priority strategy for achieving our objectives.

However, in addition, the Region may consider using the **cooperation mechanisms** between Member States provided for in Directive 2018/2001 in order to contribute to the increase in Wallonia's renewable share and its energy supply. In addition, unlike simple transfers of statistics, a technology to involve a Walloon company could be negotiated in this context, which would allow for socio-economic benefits.

265	In supplement of development priority of renewable in Wallonia, to set up joint projects with and in other Member States to contribute to the increase in Wallonia's renewable share and its energy supply.	Planned	EU obligation

III. Specific measures on financial support, where appropriate, including Union support and the use of Union funds, to promote the production and use of energy from renewable sources for electricity, heating and cooling, and transport.

The funds concerned: see 5.3 for more details

Federal State

To gradually reduce dependence on fossil fuels in the **short term** and to accelerate the energy transition, the Federal Government has taken the following **measures** that increase the share of renewables in gross final energy consumption:

Measures from 1/4/2022 to 31/12/2023:

- 6 % VAT for installation and assembly of solar panels for houses below 10 years;
- VAT of 6 % for the installation and installation of heat pumps (for home heating) and solar water heaters for houses under the age of 10;
- 6 % of VAT for demolition and reconstruction, which, taking into account current requirements in terms of energy performance (EPBD) implementing the EU Directive, in practice means not only energy efficient new construction, but also the integration of renewable energy production.

To reduce **long-term** reliance on fossil fuels, the government is taking the following **steps**:

- In order to reduce traction energy consumption for rail, see section 3.1.1.i. 3 Transport and mobility: G.
- Smart and controllable photovoltaic solar panels and bidirectional charging stations will be installed in SNCB stations in order to better manage electricity demand during the day. To this end, a business model is being developed to which private companies can subscribe. A support model will be developed for bi-directional charging points.
- As far as possible, solar photovoltaic panels will be installed on all buildings of the federal government; a business model is also being developed, to which private companies can subscribe.
- The possibility of approving energy renovation decisions in residential buildings by simple majority, etc., is being explored.
- The tax measure on charging stations will be complemented in light of new technologies (such as controllable smart bidirectional charging points).
- The government will ask the BNB and FSMA to explore the possibility of encouraging investment policy commitments from the second and third pillars by the end of April 2024. In accordance with the Government Agreement, these commitments aim to encourage, on the one hand, disinvestment in sectors harmful to 488.

the environment and health, including fossil fuels, and investments in the energy transition of our economy. On the basis of this analysis, the Minister of Finance will launch consultations with stakeholders and make a proposal to the government.

- In order to provide individuals and businesses with sufficient legal certainty with regard to administrative decisions (including decisions on investments in the energy transition and renewable energy projects in particular), the Federal Government approved on 17 February 2023, at second reading, a preliminary draft law and, at first reading, a draft Royal Decree (Royal Decree) aimed at substantially reforming the legislative and administrative law sections of the Council of State. A second draft Royal Decree was also approved at first reading, allowing for priority treatment of energy transition files. This with a view to a more efficient and qualitative resolution of all administrative disputes and optimising the legislative process, on the basis of and taking into account the concept note as approved by the Council of Ministers on 21 July 2021 and the new knowledge acquired since then. More specifically, to this end, a substantial reform of the Administrative Litigation Section and the Legislative Section is envisaged, as well as a further extension of the staff framework to the Council of State (in addition to the enlargement of the staff framework already obtained at the Budget Accord in October 2021). As regards the proceedings of the Administrative Litigation Section, they are based on the fastest and most efficient procedures possible, while ensuring the level of legal protection required for all parties. The proposal to be submitted to the government will also be accompanied by a concrete calculation for the further extension of the staffing framework.
- The Government instructs the Minister for the Economy and the State Secretary for Consumer Affairs to examine how energy efficiency contracts can be made possible in the Economic Law Code by amending consumer credit and extending the maximum repayment periods for consumer credit for these specific investments. It also makes it possible to link a financial (credit) service and an energy efficiency contract. A proposal to amend the Economic Law Code will be submitted to the Government by June 2022.
- In addition to the measures described above, the Minister of Energy is invited to remove other non-cost related barriers (regulatory legislation, supply chain, market, etc.) in order to promote the uptake rate of heat pumps, batteries, electrification and flexibility in the energy system; [to enable further integration of renewable energy].
- The Market Design will be adjusted to maximise flexibility.

Flemish Region

Flemish taxation

Flemish taxation also provides incentives for the growth of renewable energy. That tax provides, in particular, for relaxation of the criteria for exemption from property tax for State-owned buildings in the case of the installation of renewable energy technologies. With the Winwin loan, the Flemish Government encourages individuals to grant a subordinated loan to small and medium-sized enterprises. Since 2017, cooperatives engaged in renewable energy have also been able to benefit from it. The introduction of the Vriendenaandeel (early 2021) created new opportunities for (small) shareholders and co-operators.

Support for the certificate for electricity from renewable sources

The support for the green electricity certificate is updated to avoid excessive subsidisation. The calculations for the unprofitable part for wind and PV take into account market-based electricity price parameters. For new projects, wind and photovoltaic aid will be completely phased out by 2025 and

aid for biogas will be reduced to a maximum of EUR 54 per MWh.

Region Walloon

A large part of the measures are either already in implementation or foreseen in other Walloon plans and policies. For new actions, which run over several legislatures, the budgetary impact will be confirmed when they are operational. In all cases where possible, **diversification of funding methods and sources** will be sought.

Each year the Walloon Government adopts its budget and carries out part of the measures and measures in this plan through it. Amounts varying from year to year according to budgetary constraints and general political trade-offs and are therefore not specified below.

In addition, the Walloon Government has adopted the **Walloon Recovery Plan (PRW)**, which devotes substantial budgets through a series of projects in all regional competences for the period 2022-2026. The PRW is particularly mobilised under this plan. Indications of overall amounts are given, bearing in mind that the precise calibration of projects leads to variations in the specific budgets.

The investments planned for renewable energy cover all sectors. Renewable electricity will focus on improving the financing mechanism for renewable electricity, while adapting it to each sector according to its profitability, costs, the degree and/or potential of maturity of the technology. The Plan provides for various actions to strengthen the financing of renewable energy in a structural and differentiated way, as well as accompanying measures aimed at creating an investment-friendly framework, including specific funding for the smartening of heating networks to make heat production greener, and the establishment of civic energy communities (CEC) or renewable energy communities (CER).

These investments are planned to be partly financed from the envelope of the Walloon Recovery Plan (PRW).

Projects include:

- PRW79: Supporting shallow geothermal energy and mining geothermal projects
- PRW205: Supporting diversification through renewable energy
- PRW61: Support heating networks (per residential district)

In addition to these investments, the Just Transition Fund (JTF) could be mobilised to invest in creating a legal and regulatory framework for biomethanisation and in supporting the construction of biomethanisation units.

- iv. *Where applicable, the assessment of support for electricity from renewable sources to be carried out by Member States in accordance with Article 6(4) of Directive (EU) 2018/2001.*

Region Walloon

The evaluation will be attached to the final version of the plan expected in 2024.

- v. *Specific measures to set up one or more contact points, streamline administrative procedures, provide information and training and facilitate the purchase of power purchase agreements.*

Region Walloon

Streamlining administrative procedures

As mentioned above (Action 245), substantial work has been carried out to adapt the Eolienica Pax and in particular to remove legal uncertainty around wind turbines.

Facilitating the use of power purchase agreements

Finally, pursuant to Directive 2018/2001, **renewable power purchase agreements** (PPA's) as direct contracts between a grid user and a producer of electricity produced from renewable sources will be a complementary tool to the existing support mechanism. These PPAs are authorised by the legal framework in force but have not yet been developed or even non-existent. In order to enable their development, the legal and administrative frameworks will be evaluated in order to identify the existing barriers to the deployment of PPA's (analysis, in particular, of the non-discriminatory and non-disproportionate nature of the procedures and their cost). If necessary, the legal framework will be adapted and an enabling framework will be put in place (administrative contact point, development of financial risk control tools, etc.).

261	Evaluate the legal and administrative frameworks in order to identify existing barriers to the deployment of purchasing agreements	Planned	EU obligation

	electricity (PSP's) and, if necessary, setting up an enabling framework and/or adapting the legal framework		

Ensuring high-quality renewable installations (PACE 3.2.8)

The efficient and sustainable deployment of renewable energies is ultimately based on **guarantees as regards the quality of installations**, and thus on the improvement and recognition of the technical skills of stakeholders in the sector, in particular by organising training courses and encouraging labels and certifications, their ownership by installers and their recognition by consumers.

301	Perpetuating certification and labelling mechanisms (in particular through RESCert training) for RES installers; promote and facilitate the adoption of international certification labels (ISO50001 to 6, ISO14080, IPMVP, BREEAM, etc.); and analyse the potential for valorisation of RES installers labels in consultation with the sector	Discounted	PWEC
307	Supporting and empowering project promoters to maintain the performance of their RES installation in the long term by requiring monitoring of installations receiving regional support and linking support to this monitoring (reimbursement of the subsidy if monitoring stops before x years)	New	—
756	Develop a new quality label around biomethanisation units (similar to the French QualiMetha label). This framework is necessary to ensure public and environmental safety throughout the life of biomethaniser.	New	
308	Set up a library of shared tools for certified installers	New	—

Stepping up support for citizens and project promoters (PACE 3.2.7)

In general, every effort must be made to make it **easier for all investors** potentially interested in using renewable energy sources and to mobilise the various players (private, public, associations, citizens, etc.) upstream of the projects, in a dynamic and collaborative process.

For citizens, the challenge is to **rationalise and clarify existing information** in order to make it easier for citizens to take action. Renewable energy advisory services for individuals will be continued, including through energy desks and their online equivalents. The efficiency of the service will be improved and rationalisation envisaged after evaluation of the existing one. 492

The aim is also to provide objective information about renewable energy: ideas received about renewable technologies, extension of the AGW to the sectoral conditions of wind power, communication around exemplary projects, etc.

Special attention will be paid to **households in or at risk of energy poverty**, in line with the Walloon plan to lift people out of poverty, which provides for a series of measures to support households, in particular through frontline actors (see also Chapter 3.3).

In addition, the **compensation for the convenience of photovoltaic panels at home will have to be accompanied** by the forthcoming stop, so that the residential market can continue to develop in full knowledge of the facts. This support is essential to counterbalance the past lack of attractiveness of collective self-consumption in order to make optimal use of the roof surface. Similarly, reflections will be carried out to avoid the development of new barriers that reduce or eliminate the interest of renewable installations (self-consumption, energy communities, etc.), such as balancing tariffs applied by certain suppliers.

For **businesses**, support is provided, in particular, via the AMURE auditors and other measures developed in Chapter 3.5.

For **promoters of renewable energy projects**, it is also important to facilitate access to information and funding from third sources, particularly European sources; in order to increase the potential for the development of supply in Wallonia.

256	Maintain and strengthen renewable energy advisory services to effectively support citizens in their efforts, in particular through: - an assessment of energy desks, platforms, and other actors active in accompanying citizens, as well as their online equivalents; with a view to streamlining them to ensure coherent, coordinated, clear and timely information; - continuation of accompanying measures specific to households in energy poverty via grassroots relay actors; - support for households as part of the end of compensation for convenience, and support for the maximum exploitation of residential renewable potential	Discounted	Heat strategy 22/PRW 59, 60

258	Set up an administrative network for project promoters, providing information on European funding programmes. This network will be coordinated with the NCP to provide technical support for the drafting and submission of dossiers to the European bodies and the EIB (drafting, submission, monitoring), in particular to set up and finance innovative renewable energy projects.	New	—

vi. Assessment of the need to build new infrastructure for district heating and cooling from renewable sources

Federal State

Does not apply to federal policy.

Region Walloon

Some of the measures listed above contribute to the development of district heating and cooling from renewable sources. The aim of these measures is either to provide appropriate support or to remove barriers to development. They will among others include:

281	Implement the rapid development of district heating networks and, where necessary, provide support for connection to a district heating network. This financing mechanism will have to be adapted to the long lifespan of heat network/co-generation equipment and may be public, private or public-private.	Discounted	Heat strategy 11
288	Put in place an effective monitoring system for heat networks	Planned	Heat strategy 23

In addition to these actions, the “Strategy for district heating and cooling systems powered by cogeneration, fossil energies or renewable energy sources”, adopted by the Walloon Government on 11 March 2021, identifies a series of measures to promote the use of carbon-neutral energy and maximise the use of heat present in Wallonia, in particular through renewable heating networks.

vii. Where applicable, specific measures on the promotion of the use of energy from biomass, especially for new biomass mobilisation taking into account:

— *availability of biomass, including sustainable biomass: national potential and imports from third countries – other uses of biomass by other sectors (agriculture and forestry); as well as measures for the sustainability of biomass production and use*

Region Walloon

Setting up an enabling framework for the sustainable use of biomass (PACE 3.2.4)

Biomass is a **sustainable resource** which has the advantage of being a storage and pilotable energy source but is not infinite. It must therefore be managed parcimoniously, taking into account the various uses and respecting the principles of the cascade of uses. In addition, the combustion of biomass emits fine particles that are harmful to air quality. As a result, we need to ensure that **installations are efficient** and that they remain efficient over time, both to use the resource efficiently and to avoid emissions and to ensure the health of citizens. This also means replacing open lamps and poorly efficient wooden stoves as a priority. See also the measures provided for in Chapter 4, Air Quality.

Biomass, used sustainably and through efficient installations, is a **relevant alternative to fossil heating for households**. Action 296 below is therefore an accompanying measure for the removal of heating oil and coal as provided for in Chapter 3.1.

292	Develop a framework for the use of biomass (from all sources) for energy purposes	Planned	PWEC
293	Develop tools to verify biomass sustainability criteria	Planned	PWEC/PRW 206
295	Review the regulation on biomass boilers and extend it to biomass stoves	New	—
296	Introduce a bonus for the replacement of heating systems individual biomass low performing with installations for drastically reducing the discharge of particulate matter	Planned	PWEC/
291	Raise awareness among recypark managers (inter-municipal) with a view to analysing the possibilities of refining the local sorting and valorisation of bio-energy from recyparks (more circular economy and less material pollution)	New	—

Developing biogas, mine gas and synthetic gas (e-gas) (PACE 3.2.5)

The **current system** of support for low-carbon gas (biomethane) requires support for the production of renewable electricity. This means that it is absolutely necessary to produce electricity from the biomethane produced. For example, biomethane labels and guarantees of origin (LGO) are issued upon injection and only cogeneration can buy these LGOs in order to benefit from additional green certificates for the production of electricity from this biomethane. This has several disadvantages: the methodology is complex; the only cost-effective/possible use of biomethane is cogeneration (use in boilers or to produce bio-CNG is too costly because unsupported) because of this support method. This favours very little the development of the biomethane sector. The biomethane emitted must remain in a closed loop as they are in fact a production aid and therefore cannot be used on the international LGO market in accordance with EU directives.

For these reasons, **support for the production of biomethane** injected into the grid must go beyond the framework of green certificates (which is aid for electricity production) through specific direct support to be determined (calls for tenders (see Flemish mechanism for PV and wind), support for gas production, etc.). See also the planned schemes for agricultural biomethanisation in section 3.6. Axis 2.

It must be possible to establish a similar approach with **synthetic gas and mine gas** using suitable methodologies to contribute to the reduction of greenhouse gases (compared to methane for mine gas).

297	Set binding targets for gas suppliers to integrate renewable gases into their mix, taking into account local production capacities and at market prices	New	—
298	Create the legal framework for biogas in relation to the European framework and timetable. Assess the desirability of a financing mechanism for the production of biogas, biomethane and mine gas, which is not restricted to electricity production, and if necessary introduce it. This action will be developed in line with Action 259, and without competing with the primary feeder use of agricultural land.	New	—
299	Launch pilot projects for the production of biomethane/biogas from new or sub- or unused inputs in Wallonia.	New	—
777	Establish certificates of guarantee of origin for biogas production		

Developing the 2th and 3th^{generation} of biofuels. Second and third generation biofuels are part of **the diversification of energy sources**. They do not use food such as cereals or beet for their manufacture, unlike those of the first generation. This second generation comes from lignocellulosic sources (wood, leaves, straw, etc.) from advanced technical processes. Instead of using seeds or tubers of plants, the new processes seek to improve the energy balance using the whole plant and aim to develop a more sustainable solution. They are manufactured using processes such as pyrolysis and biomass gasification.

These processes make it possible **to take better account of the problem of limiting agricultural areas** and to exploit a much wider range of crops than the food range. They can exploit forestry residues, organic waste in addition to more conventional crops such as lucerne or miscanthus.

300	Support pilot projects for the production of 2th generation ^{biofuels} (and products with high added value) and research for the production of 3th ^{generation} biofuels, in compliance with sustainability criteria and without competing with the primary feeder function of agricultural land	New	—

Developing the use of biomethanisation in the agricultural sector (PACE 3.6.2. and 3.6.3.)

The reader is referred to section 1.1.1.i.B (axis 2: Developing the use of biomethanisation in the agricultural sector).

3.1.3. Other elements of the dimension

- i. Where applicable, national policies and measures affecting the EU ETS sector and assessment of complementarity and implications for the EU ETS*
- ii. Policies and measures to achieve other national targets, where appropriate*

Federal State

Adaptation (moved below 3.1.1 i. *Other policies*)

- iii. Policies and measures for the transition to low-emission mobility (including electrification of transport)*

Region Walloon

Policies and measures for more sustainable mobility are described in Chapter 3.1.1 (Mobility and Transport Sector).

- iv. Where appropriate, national policies, timetables and measures to phase out energy subsidies, in particular for fossil fuels*

The different entities, each in their area of competence, have committed to review all existing direct subsidies/rebates for fossil fuels and to establish a timetable for their phasing out.

Federal State

In May 2021, a first inventory of the identification of federal support measures for fossil fuels was carried out as part of the commitment made in the NECP, to draw up such an inventory and to adopt a plan for the phasing out of these fossil fuel subsidies. That first edition was updated in April 2023 on the basis of the information available^{on 1 January 2023}. For the inventory see 4.6 iv.

²⁹⁵²⁹⁵ the full text of the Inventory is available on the website of the FPS Finance [Inventory of Fossil Energy Subsidies | SPF Finances \(belgium.be\)](#), as well as the site of the FPS Health Climate Change Service 2th [Federal Inventory of Fossil Energy Subsidies \(climat.be\)](#)

	EUR million	
Transport		
Fuel cards	492,0	22.7 %
Difference in basic rate between products	165,4	7.6 %
Reimbursement of professional diesel	1.230,5	56.7 %
Exemption from inland navigation	10,3	0.5 %
Exemption from dredging	59,7	2.8 %
Excise duty exemption from aviation kerosene	208,9	9.6 %
Other	3,9	0.2 %
<i>Subtotal direct grants</i>	<i>2.170,7</i>	<i>100 %</i>
Company cars	1.947,2	96.9 %
VAT – Exemption for airline tickets	61,9	3.1 %
<i>Sub-total indirect grants</i>	<i>2.009,0</i>	<i>100 %</i>
Total transport	4.179,7	
Industry		
Difference in basic rate between products	1.888,6	57.6 %
Reduced rate of gas oil	383,2	11.7 %
Reduced rate of natural gas	911,2	27.8 %
Other	98,5	3.0 %
Total industry	3.281,5	100 %
Buildings		
Transfers to individuals (social tariffs, etc.)	165,6	3.5 %
Difference in basic rate between products	2.261,4	47.6 %
Exemption for heating oil	2.260,0	47.5 %
Other	65,8	1.4 %
Total Buildings	4.752,8	100 %
Agriculture and other activities		
Difference in basic rate between products	251,5	38.1 %
Exemptions on intermediate consumption	407,9	61.9 %
Total agriculture and other activities	659,3	100 %

Table xx. Details of the main subsidy items – by sector – 2020

For the identification of subsidies in this report, the identification criterion is to subsidise, directly or indirectly, the use of fossil fuels.

While they have generally been set up to meet social or competitiveness objectives, these subsidies, in their current form, run counter to efforts to decarbonise society and improve air quality.

In the discussions on phasing out these subsidies, account should be taken of the specific objectives of certain subsidies, in particular social objectives. Their reform must reconcile the elimination of adverse effects on the environment with the adverse effects on the environment by other means, which are not harmful to the environment, of the particular objectives identified.

In the transport sector, the most important item of direct subsidies is the reimbursement of professional diesel, which alone accounts for 57 % of the total direct subsidies received by this sector. This is followed by the fuel cards and the tax exemption on kerosene enjoyed by aviation. Sectoral exemptions form only a small part of total subsidies but may be relatively large in relation to the activity of these sectors. The impact of product rate differentials is here relatively limited given the small tax gap between petrol and diesel, which are the two main fuels concerned.

In industry, more than half (57 %) of direct subsidies stem from product rate differentials and in particular from low taxation of natural gas. The reduced rate applied to it for certain undertakings forms the second important item.

In the buildings sector, the two main items are subsidies from differences in rates between products and the exemption of heating oil. The first relates mainly to natural gas.

Finally, two items are to be mentioned for agricultural and similar activities. The sub-taxation of natural gas (differences in rates between products) represents 40 % of the total and sectoral schemes 60 %.

The figures given above relate to 2020. In the meantime, several measures have already been taken to phase out certain subsidies, such as the reduction of the advantage for professional diesel and the greening of mobility for company cars.

Flemish Region

The Flemish Government recently decided to end the following subsidies for **fossil fuels**:

- From 1 January 2021: abolition of the premium for installing an oil-fired boiler at protected customers.²⁹⁶
- From 1 January 2022: investment premium for fossil microcogeneration with a capacity up to 10 kW.²⁹⁷
- Since 1 July 2022: end of premium for the installation of a condensation gas boiler for protected customers.²⁹⁸
- Since 1 July 2022: abolition of the cap on natural gas connection charges for new buildings. From that date, new natural gas connections will be charged at the actual cost of the connection, meaning that the additional cost above EUR 250 will no longer be included as a public service obligation in the general tariffs for the distribution of natural gas.²⁹⁹
- From 1 January 2023: end of certificate support for new and substantially modified fossil CHP plants.³⁰⁰
- From 1 January 2025: removal of the cap on natural gas connection charges for existing residential

²⁹⁶Decision of the Flemish Government of 18 September 2020, [VR 2020 1809 DOC.1026/1TER](#).

²⁹⁷Decision of the Flemish Government of 10 December 2021, [VR 2021 1012 DOC.1411/2](#).

²⁹⁸Decision of the Flemish Government of 4 February 2022, [VR 2022 0402 VV DOC.0007/1BIS](#).

²⁹⁹Decree of 16 March 2022 amending the Energy Decree of 8 May 2009.

³⁰⁰Decision of the Flemish Government of 8 July 2022, [VR 2022 0402 VV DOC.0007/1BIS](#).

units or buildings.

- In 2023: removal of the premium for natural gas condensing boilers from the 'Mijn Verbouwpremie' premium.³⁰¹

The next energy subsidies will be phased out, thus reducing electricity bills:

- By order of the Flemish Government of 8 July 2022, the timetable for phasing out the maximum limiting factors for solar, wind and biogas was set at 2024 and 2025. The aim is to phase out aid for biogas and to end aid for solar and wind projects from 2025 onwards.
- The municipalities signatory to LEKP 2.0 commit not to introduce a tax on renewable energy installations and to phase out existing taxes, such as the tax on wind towers, by 2025 at the latest.³⁰²
- In 2022, a draft decree was drawn up and approved in principle by the Flemish Government to cap green energy certificates for installations with a starting date before 2013 from 1 January 2024, once the de minimis threshold is exceeded.

The Energy Decree describes two situations in which an extension of the natural gas distribution network is carried out at the cost of the system operator. On the one hand, Article 4.1.16, which provides that, under certain conditions, the system operator must support the cost-effective part of the extension of the natural gas network. And, on the other hand, Article 7.3.1, which provides that the costs of laying gas pipelines over the first 750 metres on the public domain between the natural gas distribution network and a production facility with a capacity of at least 75 kWe and no more than 5 MWe are to be borne by the system operator in so far as the connection capacity of that production facility does not exceed 2.500 m³/h. In the context of VEKP, these two preferential schemes will be abolished as from 1 January 2025.

We call on the federal authority to carefully assess fossil fuel subsidies/reductions and phase them out where useful.

Region Walloon

Abandoning public support for fossil fuels (PACE measure 3.1.5)

The abolition of public support for fossil fuels, provided that there are alternatives, is an important pillar of the planning and implementation of the phasing-out of fossil fuels.

Following the decision of the Walloon Government of 27 May 2020, a cadastre of Walloon public support for fossil fuels (subsidies, investments and investments) and an action plan facilitating disinvestment in fossil fuels for the SPW and UAPs will be proposed.

The SPW Missions cadastre covers the inventory of support for citizens, communities and businesses (subsidies, grants, aid, exemptions, etc.) with direct or indirect links with the use of fossil fuels. The cadastre covers the SPW's organisation chart as a whole and focused on two main forms of subsidy, namely transfers of funds (bonuses, aid, subsidies, etc.) and taxation (tax breaks, reductions/exemptions, favourable tax treatments, etc.).

The cadastre and action plan within the Public Administration Units (UAPs) will be carried out following the adoption of the SPW Action Plan. Wallonia will defend the same measures at Belgian and European level.

³⁰¹ Decision of the Flemish Government of 4 February 2022, [VR 2022 0402 VV DOC.0007/1BIS](#).

³⁰² Decision of the Flemish Government of 8 July 2022, [VR 2022 0107 DOC.0733/5](#).

In the long term, the Walloon Region's loans and equity investments will have to move gradually towards widespread fossil disinvestment, provided that there are sustainable alternatives. This reorientation strategy must safeguard the energy and strategic interests of the Walloon Region, in particular in order to guarantee its security of supply and energy sovereignty.

242	Implement the cadastres (SPW and UAPs) and implement the action plan to phase out public support for fossil fuels (subsidies, investments and investments) with a view to their elimination by 2027 at the latest, provided that there are sustainable alternatives.	Discounted	DPR/PWEC/Strat Chargeur
750	Gradually redirecting the Walloon Region's credit and participation grants towards non-fossil energy interventions	New	

In the draft SPW Missions cadastre, still to be submitted to the Government for validation, for devices with a legal basis, 92 devices were registered and prioritised in 4 categories, depending on the proven or likely support of the scheme for fossil fuels/energy sector and the percentage of the scheme that actually benefits fossil fuels/energy sector.

Only devices with the greatest impact will be likely to require priority action under the future action plan.

Alongside prioritisation, a typology with various modus operandi has been proposed. These modus operandi will make it possible to identify for each device whether it must be maintained, removed, adapted or allowed to be switched off, depending on the specific characteristics of each device.

For optional grants without a legal basis, the processing would be ad hoc.

The Government will still have to validate the cadastre, prioritisation and action plan.

Brussels Capital Region

List of energy subsidies, including those for fossil fuels, in the Brussels-Capital Region

This list was approved by the Government of the Brussels-Capital Region (RBC) on 1 April 2021 and updated by Bruxelles Environnement in September 2023 on the basis of the RBC's new air- climate and energy plan and the Renolution bonus programme for 2023.

Energy subsidies, including those for fossil fuels	Disposal perspective	Update on disposal status (2023)
Energy premiums		

C1: natural gas heater, boiler or air generator	To be studied in 2021 as part of the implementation of the Brussels contribution to the NECP and from ambition RBC climate in 2030	Eliminated
C4: heat pump – space heating	None	None (amount increased)
C5: heat pump – domestic water heater	None	None (amount increased)
C6: conducts collective chimneys	To be studied in 2021 as part of the 2030 climate ambition	Eliminated
C7: solar water heater	None	None

Premium for connection to a district heating system	Did not exist	Newly created
<u>Support for business investment</u>		
The aid direct to investment in acquisition from machines and equipment pursuant to the Government Decree of 11 October 2018 on aid to the general investments (Article 7) benefit, inter alia, solar panels, space and water heating systems, including heat pumps, etc.	None	None
<u>Green certificates</u>		
Support to the production electricity from renewable energy sources	None	None
Support for gas-fired cogeneration	Planned by 2030 (as part of the implementation of the Brussels contribution to the NECP)	Advanced to 2025 (as part of the NECP update)
Support for biogas cogeneration	None	None
<u>“SolarClick”</u>		
Installation of solar photovoltaic panels on the roofs of public buildings	None	None (but integrated into the Renoclick programme)

3.2. Energy efficiency dimension

I. Energy efficiency obligation schemes and alternative policy measures referred to in Articles 7a and 7b and Article 20(6) of Directive 2012/27/EU and to be established in accordance with Annex III to this Regulation.

The federated entities contribute to the Belgian objective through policies and measures and the Federal State, within its own powers, contributes to the objective by means of accompanying measures.

Federal State

Three new measures notified by the Federal Government in 2021 under Article 7 “alternative policy measures”:

- Finances: 6 % VAT on demolition and reconstruction

In some metropolitan areas, the VAT rate for demolition and reconstruction has already been reduced to 6 % (it was 21 %). This reduced VAT rate was extended in 2021 to include reconstruction projects throughout the territory of the Kingdom of Belgium.

With the new measure, real estate developers can also benefit from this reduced rate, whereas it was previously reserved for owners. The objective of this measure is, inter alia, to encourage owners of unoccupied or degraded buildings or building developers to renovate their buildings to make them more energy efficient. It is also a stimulus measure for the construction sector that has been severely affected by the corona crisis.

- Defence: defensive driving course

The aim of this policy is to train drivers using company cars in economic driving in order to learn a driving style aimed at reducing fuel consumption.

All commercial, non-military and non-specific service vehicles of categories M1 (passenger cars) and N1 (light commercial vehicles) shall be equipped with a telematics system to monitor the driving behaviour of their users (e.g. braking, speed, turns, etc.).

- Mobility/railways: traction losses

By making better use of the potential of energy-efficient driving (eco-driving), by controlling the comfort function more effectively in stationary trains (eco-parking), by switching on existing rolling stock and by putting more energy efficient equipment into service, it is possible to reduce the specific train consumption per tonne-kilometre (baseline measure: reduction of energy consumption of rail traction and associated CO2 emissions).

Flemish Region

As regards the achievement of the objective of Article 7 for 2021-2030, the Flemish Region has so far chosen not to put in place an obligation mechanism on the part of suppliers or distribution system operators, but to pursue, as a first step, the alternative measures. To this end, the measures already notified to the European Commission in the period 2014-2020 will be further extended under the WEM scenario (scenario with existing measures) with all existing and new measures that are considered according to the European Commission’s guidelines.

The table below provides an overview of the measures eligible for Article 7, including cumulative energy savings calculated for the period 2021-2030:

period	2021-2030	in GWh
Voluntary EBO from energy-intensive businesses		45.100
Normative framework for energy-intensive industry		1.774
Strengthening the legislative framework for low energy intensive companies (including sectoral federation agreements) —		2.900

Ecological bonus	7.452
Waste heat and district heating	6.111
Premiums for insulation measures and renewable energy installations	11.707
Optimisation of heating settings	2.157
Truck kilometre sampling	7.876
Reduction on property tax for new buildings	400
Obligation to renovate after transfer	3.971
Requirement for a minimum label for building units	2.398
Total ENERGY ECONOMIC (final)	91.845

On this basis, the Flemish Region's contribution to the Belgian target amounts to 91.845 TWh. This contribution has been calculated in accordance with the methodology established by the current EED Directive. Calculations made on the basis of additional information or new measures and any changes resulting from the revision of this Directive will be taken into account in the final update of the VEKP.

Long-term renovation strategy to support the renovation of the building stock and non-residential buildings

For this purpose, reference is made to the Flemish long-term renovation strategy.

Region Walloon

Under the current framework of the Energy Efficiency Directive (Revision 2018), Wallonia needs to put in place a mechanism that ensures that new end-use energy savings of 0.8 % of its final energy consumption are achieved annually, resulting in additional savings of 1.018 GWh per year over the whole period 2021-2030. Wallonia therefore has a cumulative savings target over the period 2021-2030 of 55.971 TWhcum. (see Section 2.2.2. for more details).

Accounting for the energy savings achieved in order to fulfil this obligation must comply with very strict criteria:

- Robust, consistent and documented measurement or evaluation methodology.

Taking into account the lifetime of the impact of each measure individually.

End-use is CTO r	Type or category of individual action	Assumed life value (in years)	Assumptions about possible changes in the energy savings over time	Source or method use to estimate the lifetime and related assumptions
Residential	Building envelope	3	NA	Lifetime standards prepared for ESD 2006/32
Tertiary	Building envelope	3	NA	Lifetime standards prepared for ESD 2006/32
Residential	Heating systems	2	NA	Lifetime standards prepared for ESD 2006/32
Tertiary	Heating systems	2	NA	Lifetime standards prepared for ESD 2006/32
Tertiary	Ventilation systems and	1	NA	Lifetime standards prepared for ESD 2006/32
Industry	EE investments in process	1	Not applicable for industry agreements	Lifetime standards prepared for ESD 2006/32
Tertiary	Public lighting	1	15 years if above standards; 3 years	Lifetime standards prepared for ESD 2006/32
Transport	Modal change	5		Lifetime standards prepared for ESD 2006/32
Industry/ter	Refrigeration/cooling	5		Lifetime standards prepared for ESD 2006/32
1 NL	Maintenance	5		Lifetime standards prepared for ESD 2006/32
Tertiary	CDE	1		Lifetime standards prepared for ESD 2006/32

- Eligibility of the measures taken into account (targeting the reduction in final consumption, not demand response by renewable production).
- Additionality of the measure in relation to European standards and standards and to spontaneous developments.
- Materiality (representative contribution of the measure to the transition to the action) of each measure selected.
- Minimum quality requirements for implementation.
- No double impact counting when several measures contribute to the same action.

Wallonia notified 6 measures contributing to the fulfilment of the energy savings obligation:

- Implementation of the long-term strategy for the renovation of Walloon buildings, all of which are eligible under the Article 7 mechanism, in both the residential and public and private sectors, including the exemplary nature of public buildings to achieve energy neutrality well before 2050.

PAM Number	206
Name of the policy measure	Implementation of the long-term renovation strategy for the Walloon building stock
Type of policy measure	Mix of different measures and actions (regulatory, financial, fiscal, voluntary, energy services, information/training, etc.) which contribute to the same objective across 2 sectors (residential and tertiary)
Short description of the policy measure (including design features)	For residential: move in 2050 towards the EPB A label (ESPEC ≤ 85 kWh/m ² /year) on average for the entire housing stock (the decarbonised energy part included in Stratréno is not eligible under Article 7 EED) For the tertiary sector: move in 2050 towards an energy-efficient tertiary building stock for heating, domestic hot water, cooling and lighting (target of 80 kWh/m ² – the decarbonised energy part included in the Stratréno is not eligible under Article 7 EED)
Source (s) of information (including the reference of the related law or other legal text (s))	Walloon strategy for the long-term energy renovation of the building, as approved by the Walloon Government on 12 November 2020. Measure 3.4 of PACE2030: Speed up and mass renovation of buildings https://awac.be/wp-content/uploads/2023/03/PACE-2030_adopte-GW-21-mars-2023.pdf
Budget planned or estimated, including the corresponding implementation period (s)	Total investment needs over the period 2020-2050 were estimated at EUR 120 billion for residential, of which EUR 63 billion between 2020 and 2030 and EUR 34-57 billion for the service sector over the 30-year period, of which EUR 18.2 billion between 2020 and 2030.

Expected savings for 2021-2030 and duration of the obligation period (s) (points 5 (d) and 5 (e) of Annex V to Directive 2012/27/EU)

Expected cumulative end-use energy savings for the period 2021-2030 (ktoe)	18 150 Gwhcum, i.e. 1 560 ktoecum

Expected new annual end-use energy savings (ktoe/year)⁽¹⁾

2021	9.502
2022	13.713
2023	18.980
2024	26.076
2025	36.340
2026	49.345
2027	51.888
2028	54.407
2029	56.893
2030	58.232
Intermediate period (s), where relevant ⁽²⁾	2021-2025: intermediate objective 2 880 GWhcum (250ktoecum)

Key design features

Implementing public authorities, participating or entering parties and their responsibilities for implementing the policy measure (paragraphs 3 (b) and 5 (b) of Annex V to Directive 2012/27/EU)	Government of Wallon, which delegates to its external administrations and operators
Target sectors (point 5 (c) of Annex V to Directive 2012/27/EU) ⁽³⁾	Residential and tertiary, mainly public and non-market

Individual actions eligible to the alternative measure (point 5 (f) of Annex V to Directive 2012/27/EU) and corresponding lives (points 2 (i) and 5 (h) of Annex V to Directive 2012/27/EU) ⁽⁴⁾	All the Stratréno measures, including: Minimum performance criteria and mandatory works at certain stages of the life of the building imposed by the EPB legislation; Coaching via the one-stop shop; Obligation to draw up the building roadmap (starting point, potential and renovation stages) and a tool to centralise data by introducing the building passport; Bonuses, subsidies (energy, rehabilitation), loans (ECOPACK) and taxation adapted to households; Exemplary renovation of public buildings; Grants (UREBA), subsidies (Infrasport, Plan Piscines, etc.) and 0 loans for public buildings (CRAC); Support for the use of Escos and performance contracts in the tertiary sector
Specific policy measures or individual actions targeting energy poverty (where applicable)	The Stratréno measures specifically referred to in the fight against energy poverty were brought together under Article 7 AltM05Precarity (PAMs 505) in order to be more visible. They are therefore not included (or their impact) under this measure alters M01Stratréno.
General information about the calculation methodology	
Measurement method (s) used (point 1 of Annex V to Directive 2012/27/EU) ⁽⁵⁾	'Loss savings' in the case of financial incentives and legal obligations: the saving shall be calculated on the basis of the actual technical details of the individual improvement compared to an average reference consumption established for the corresponding building typology. The calculation is in line with the EPB methodology, based on the evolution of the EPB indicators defined and monitored by Stratréno by building typology, and with a correction coefficient between the theoretical consumption of the EPB and the actual consumption recorded for this type of building. 'Delivered savings' in the case of energy performance certificates: the economy is checked on the basis of the consumption actually measured, compared to the baseline adjusted for the activity factors.
Metric (s) used to express the energy savings (primary or final energy savings) (point 3 (d) of Annex V to Directive 2012/27/EU)	Final energy saving
How are they (and possible changes in savings over time) taken into account in savings calculations (points 2 (i) and 5 (h) of Annex V to Directive 2012/27/EU) ⁽⁶⁾	"STRAIGHTFORWARD method" for financial obligations and incentives: the calculated EE shall be applied from the year of the action as many times as the lifetime of the action allows. Lifespans depend on the type of action and are in line with CWA 15693: 2007 for ESD 2006/32 Not applicable in the case of energy performance contracts with guarantee over time: the one-off EF is checked annually and takes into account all previous improvements/deterioration.
Main datasources used to calculate the savings	Technical details by file of individual measures implemented in connection with renovation obligations and financial incentives, as available in the managers' databases (energy/rehabilitation premiums, Ecopack and Ureba, etc.) and in monitoring the indicators put in place by the EPB legislation. Actual building consumption and demonstrated performance in the case of energy performance certificate files
Other sources of information or references (e.g. studies, evaluation reports) where more details and details about the savings calculations can be found	EPB methodology; Baseline by typology defined by EPB tools (certificates, audits, COZEB study);
Additionality and materiality (requirements related to points 2 and 5 (g) of Annex V to Directive 2012/27/EU)	
Description of the calculation methodology; including how additionality is taken into account in the calculation methodology (point 2 (a) of Annex V to Directive 2012/27/EU) ⁽⁷⁾	Not applicable: the renovation strategy to boost energy renovation of buildings is eligible without restriction

Does the policy measure promote early replacements? If so, how is it taken into account in the calculation of the savings? (point 2 (f) of Annex V to Directive 2012/27/EU)	Significant increase in renovation rate (> 3 %/year).
Benchmarks used for determining and Scaled savings (point 1 (c) of Annex V to Directive 2012/27/EU)	COZEB study, EPB certification databases and EPB audit + Walloon energy balances
How is materiality of savings enforced? (point 3 (h) of Annex V to Directive 2012/27/EU)	Calculation of the impact of each dossier on the basis of the individual technical data available. Documentary verification carried out at 100 % on the basis of the audit carried out upstream and invoices for the corresponding work.
Possible overlaps (between policy measures and between individual actions) and double counting	
Possible overlaps between individual actions eligible to the policy measure ⁽⁸⁾	Not applicable: no obligation mechanism
Possible overlaps among the EEOS (if any) and alternative measure (s) reported to Article 7	Not applicable: no obligation mechanism
How are possible overlaps (among the EEOS, if any, and alternative measures) addressed to avoid any double counting of energy savings? (point 3 (g) of Annex V)	Not applicable: no obligation mechanism. In order to avoid any risk of double counting, measures to reduce energy poverty and their impact are excluded from this measure (since they are taken over as AltM05Precarity), and the impact of measures to improve private tertiary buildings will be accounted for via the AltM03AdB3 or AltM04Enterprise measures, given the difficulty of isolating the consumption of buildings from the overall consumption of private enterprises.
Climate variations (where relevant) (points 2 (h) and 5 (i) of Annex V to Directive 2012/27/EU)	
Are there climatic variations between regions? And can they affect the actions eligible to the policy measure?	Not applicable: Belgian average value (Uccle)
How are climatic variations addressed in savings calculations where relevant?	Not applicable: Belgian average value (Uccle)
Monitoring and verification (M & V) of savings (point 5 (j) of Annex V to Directive 2012/27/EU)	
Brief description of the monitoring & verification system and of the process of verification	CF measure ALTM00Monitoring and the creation of a transversal cell under Article 7.
Authorities responsible for the M & V of the policy measure	Horizontal Committee Article 7
Independence of the M & V from the participating or entering parties (Article 7 (2) of Directive 2012/27/EU)	Article 7 of the Transversal Committee acts as methodological guarantor and supervisory authority, while ensuring that each of the authorities responsible for implementing a contributing measure is properly responsible for the obligation to implement a contributing measure.
Verification of statistically representative samples (Article 7 (2) of Directive 2012/27/EU) ⁽⁹⁾	100 % on a documentary basis, with possibility of on-site verification in case of doubt
Publication of energy savings achieved each year under the policy measure (point 3 (e) of Annex V to Directive 2012/27/EU)	Article 7 annual report of the Transversal Committee, sent to the Minister for Energy and, where appropriate, to the Government.
Penalties applied in case of non- compliance (and related references, including the law or other legal texts setting the penalties and related conditions)	The legal framework of each contributing measure (obligation or incentive) provides for a financial penalty and/or reimbursement of incentives unduly received by the beneficiary if the beneficiary has not complied with the taxes.

Provision (s) in case the progress of the policy measure is not satisfactory (point 3 (f) of Annex V to Directive 2012/27/EU)	On the basis of the findings and recommendations of Article 7 of the Transversal Committee, the Walloon Government will take appropriate measures (amendment/reinforcement of the initial measure or additional measure) in order to ensure that the cumulative objective for the whole mechanism is achieved in 2030.
Information about quality standards (point 2 (g) of Annex V to Directive 2012/27/EU)	
How are quality standards (for products, services and installation of measures) promoted or required by the policy measure?	The legal framework of each measure provides for the imposition of minimum technical criteria, both for obligations and for financial incentive programmes
Supplementary information or explanations	
Any other information of explanation that can be useful for experience sharing	

Implementation of the FAST plan, of which all modal shift measures (soft modes, public transport, shared vehicles, etc.) are eligible for the Article 7 mechanism.

PAM Number	207
Name of the policy measure	Implementation of the FAST vision via the Regional Mobility Strategy (SRM)
Type of policy measure	Mix of different measures and actions (regulatory, financial, fiscal, voluntary, information/training, etc.) which contribute to the same objective on Walloon mobility
Short description of the policy measure (including design features)	Achieving a minimum 24 % reduction in GHG emissions from transport compared to 2005 (mobility of people)
Source (s) of information (including the reference of the related law or other legal text (s))	The FAST vision adopted by the Walloon Government in 2017 and its action plan, the SRM (Regional Mobility Strategy), the first part of which (mobility of persons) was approved by the Walloon Government on 9 May 2019. The goods part is being finalised.
Budget planned or estimated, including the corresponding implementation period (s)	At Walloon level, a budget of EUR 1,38 billion is estimated for the delivery from objectives of Plan Mobility 2019-2024, the development from platforms multimodal ('mobile-poles'), the extension of the Charleroi metro, gauging by dredging inland waterways, and improving mobility around airports, including, inter alia, annually: EUR 80 million for alternatives to the car; EUR 3,7 million to increase the supply of buses; EUR 4,5 million to green the bus fleet; EUR 5,4 million for tariff reduction for users
Expected savings for 2021-2030 and duration of the obligation period (s) (points 5 (d) and 5 (e) of Annex V to Directive 2012/27/EU))	
Expected cumulative end-use energy savings for the period 2021-2030 (ktoe)	16 500GWhcum, i.e. 1 419 ktoecum
Expected new annual end-use energy savings (ktoe/year) ⁽¹⁾	In top down, the final transport conso decreases by 8.3 TWh between WEM2030 and WAM 2030. However, not all measures will be eligible under Article 7 (e.g.: additionality of improvement from performance vehicles). A first conservative estimate, reflecting only the moderation of needs (axis 1) and the modal shift (axis 2) leads to an estimated impact of 3 TWh in 2030, i.e. 300 GWh/year, i.e. 25,79 ktoe/year.
2021	

2022	
2023	
2024	
2025	
2026	
2027	
2028	
2029	
2030	
Intermediate period (s), where relevant ⁽²⁾	2021-2025: intermediate objective 4500 GWhcum (387ktoecum)
Key design features	
Implementing public authorities, participating or entering parties and their responsibilities for implementing the policy measure (points 3 (b) and 5 (b) of Annex V to Directive 2012/27/EU)	Government of Wallon, which delegates to its external administrations and operators
Target sectors (point 5 (c) of Annex V to Directive 2012/27/EU) ⁽³⁾	Road, rail and inland waterway transport, both for people and for goods
Individual actions eligible to the alternative measure (point 5 (f) of Annex V to Directive 2012/27/EU) and corresponding lives (points 2 (i) and 5 (h) of Annex V to Directive 2012/27/EU) ⁽⁴⁾	The mobility strategy consists of 3 axes: 1. Rationalise needs (avoid); 2. Encourage modal shift transfers; 3. Improving the performance of vehicles (Improve). The clusters of measures eligible for Article 7 include: A. People's mobility side 1. Demand moderation; 2° modal shift from voiture to soft modes and public transport, 3° improving the occupancy rate from cars private. B. Commodality of goods mobility 1. The development of co-modality; 2°. reduction of empty returns; 3° the use of 'Ecomobis' type trucks. Investments in the public transport fleet and performance requirements for vehicles put into circulation (greening the fleet of persons and goods) are subject to the additionality rule. Only early replacement can be used.
Specific policy measures or individual actions targeting energy poverty (where applicable)	Gradual implementation of free buses, with, as a first step, a reduction in charges for 18-24 year olds and vulnerable groups
General information about the calculation methodology	
Measurement method (s) used (point 1 of Annex V to Directive 2012/27/EU) ⁽⁵⁾	Surveyed savings, as these are mainly behavioural changes (moderation + modal change). The Walloon Public Service is setting up a scoreboard with activity and intensity indicators for transport. It is the variation, year by year, of these indicators that will make it possible to determine the impact of the various measures in the regional mobility strategy by comparing them with the baseline defined without these measures (but with an assumption of a spiked improvement in vehicle performance).

Metric (s) used to express the energy savings (primary or final energy savings) (point 3 (d) of Annex V to Directive 2012/27/EU)	Final energy saving
How are they (and possible changes in savings over time) taken into account in savings calculations (points 2 (i) and 5 (h) of Annex V to Directive 2012/27/EU)) ⁽⁶⁾	Not applicable, the impact estimate being based on a modal shift calculated in topdown (measured year-by-year), compared to a baseline
Main datasources used to calculate the savings	Walloon Mobility Scoreboard, in line with the Walloon energy balances and baseline reference defined in the Walloon Energy Climate Plan.
Other sources of information or references (e.g. studies, evaluation reports) where more details and details about the savings calculations can be found	
Additionality and materiality (requirements related to points 2 and 5 (g) of Annex V to Directive 2012/27/EU)	
Description of the calculation methodology, including how additionality is taken into account in the calculation methodology (point 2 (a) of Annex V to Directive 2012/27/EU)) ⁽⁷⁾	In the case of moderation of demand and shift to milder modes of travel, there is no additionality with European standards
Does the policy measure promote early replacements? If so, how is it taken into account in the calculation of the savings? (point 2 (f) of Annex V to Directive 2012/27/EU)	Early replacement (greening of the fleet) is currently not valued, just moderation and modal shift.
Benchmarks used for determining and Scaled savings (point 1 (c) of Annex V to Directive 2012/27/EU)	Final consumption of Walloon transport in 2017 (FAST and SRM reference).
How is materiality of savings enforced? (point 3 (h) of Annex V to Directive 2012/27/EU))	Comparison to an ex-ante defined baseline (modelling)
Possible overlaps (between policy measures and between individual actions) and double counting	
Possible overlaps between individual actions eligible to the policy measure ⁽⁸⁾	Not applicable: no obligation mechanism
Possible overlaps among the EEOS (if any) and alternative measure (s) reported to Article 7	Not applicable: no obligation mechanism
How are possible overlaps (among the EEOS, if any, and alternative measures) addressed to avoid any double counting of energy savings? (point 3 (g) of Annex V)	Not applicable: no obligation mechanism. No risk of double counting with the other alternative measures Article 7 FAST is the only measure taken into account for the transport sector.
Climate variations (where relevant) (points 2 (h) and 5 (i) of Annex V to Directive 2012/27/EU))	
Are there climatic variations between regions? And can they affect the actions eligible to the policy measure?	Not applicable
How are climatic variations addressed in savings calculations where relevant?	Not applicable

Monitoring and verification (M & V) of savings (point 5 (j) of Annex V to Directive 2012/27/EU))

Brief description of the monitoring & verification system and of the process of verification	CF measure ALTM00Monitoring and the creation of a transversal cell under Article 7.
Authorities responsible for the M & V of the policy measure	Horizontal Committee Article 7
Independence of the M & V from the participating or entering parties (Article 7 (2) of Directive 2012/27/EU)	Article 7 of the Transversal Committee acts as methodological guarantor and supervisory authority, while ensuring that each of the authorities responsible for implementing a contributing measure is properly responsible for the obligation to implement a contributing measure.
Verification of statistically representative samples (Article 7b (2) of Directive 2012/27/EU) ⁽⁹⁾	100 % based on statistical indicators
Publication of energy savings achieved each year under the policy measure (point 3 (e) of Annex V to Directive 2012/27/EU)	Article 7 annual report of the Transversal Committee, sent to the Minister for Energy and, where appropriate, to the Government.
Penalties applied in case of non-compliance (and related references, including the law or other legal texts setting the penalties and related conditions)	The legal framework of each contributing measure (obligation or incentive) provides for a financial penalty and/or reimbursement of incentives unduly received by the beneficiary if the beneficiary has not complied with the taxes.
Provision (s) in case the progress of the policy measure is not satisfactory (point 3 (f) of Annex V to Directive 2012/27/EU)	On the basis of the findings and recommendations of Article 7 of the Transversal Committee, the Walloon Government will take appropriate measures (amendment/reinforcement of the initial measure or additional measure) in order to ensure that the cumulative objective for the whole mechanism is achieved in 2030.
Information about quality standards (point 2 (g) of Annex V to Directive 2012/27/EU)	
How are quality standards (for products, services and installation of measures) promoted or required by the policy measure?	Not applicable in the case of behavioural measures
Supplementary information or explanation	
Any other information of explanation that can be useful for experience sharing	

New generation of sectoral agreements with industry and businesses.

PAM Number	105
Name of the policy measure	Voluntary agreements with industry – 2nd and 3rd generation
Type of policy measure	Voluntary agreements

Short description of the policy measure (including design features)	Based on the concept of the 2th Generation Branch Agreements, since the 3th generation is under preparation and the details of its implementation are not yet fixed. Environmental agreement between the signatory industrial federations and the Walloon Government, based on a formal commitment to improve their energy efficiency and greenhouse gas emissions well beyond the spontaneous effort. In exchange for financial counterparties, the participating undertakings through their federation commit to achieving a goal of improving their energy intensity (and emissions) determined according to a strict methodology. The objective is set by a very thorough audit of the company, carried out by accredited professionals, incorporating the impact of all the company's recommendations with a return time of 5 years. Steering Committees composed of representatives of the Minister, the Administration, the federations and the appointed expert validate the annual reports, issue recommendations, and may enforce sanctions.
Source (s) of information (including the reference of the related law or other legal text (s))	Environmental Convention Branch Agreements
Budget planned or estimated, including the corresponding implementation period (s)	Not available at this stage, the details of the 3th generation need to be finalised in order to have an estimate.
Expected savings for 2021-2030 and duration of the obligation period (s) (points 5 (d) and 5 (e) of Annex V to Directive 2012/27/EU)	
Expected cumulative end-use energy savings for the period 2021-2030 (ktoe)	12 500GWhcum (100 GWh * 27 + 350 GWh * 28), i.e. 1 075 ktoecum
Expected new annual end-use energy savings (ktoe/year) ⁽¹⁾	Estimate provisional, based on the one contribution annual - 100 GWh/year, i.e. 8,60 ktoe/year, during the extension phase of the AdB2 (2021-23) - and 350 GWh/year, i.e. 30,09 ktoe/year for AdB3 from 2024 onwards (the same impact as for AdB2 and where these have reached or even exceeded)
2021	8.598
2022	8.598
2023	8.598
2024	30.095
2025	30.095
2026	30.095
2027	30.095
2028	30.095
2029	30.095
2030	30.095
Intermediate period (s), where relevant ⁽²⁾	2021-2023: 600 GWhcum, i.e. 51,6 ktoecum
Key design features	
Implementing public authorities, participating or entering parties and their responsibilities for implementing the policy measure (points 3 (b) and 5 (b) of Annex V to Directive 2012/27/EU)	Government of Wallon, which delegates to the governing committees set up specifically for these Branch Agreements

Target sectors (point 5 (c) of Annex V to Directive 2012/27/EU) ⁽³⁾	Industry
Individual actions eligible to the alternative measure (point 5 (f) of Annex V to Directive 2012/27/EU) and corresponding lives (points 2 (i) and 5 (h) of Annex V to Directive 2012/27/EU) ⁽⁴⁾	Based on the concept of the 2nd generation Branch Agreements (3rd generation under preparation, the details of its implementation are not yet fixed): evolution of EEA indices (energy intensity) of signatory entities.
Specific policy measures or individual actions targeting energy poverty (where applicable)	All measures in the action plans put in place by companies to achieve their energy consumption reduction targets.
General information about the calculation methodology	
Measurement method (s) used (point 1 of Annex V to Directive 2012/27/EU) ⁽⁵⁾	Implemented savings, through the annual measure of the reduction in actual consumption, duly adjusted by the activity factors influencing it.
Metric (s) used to express the energy savings (primary or final energy savings) (point 3 (d) of Annex V to Directive 2012/27/EU)	Final energy saving
How are they (and possible changes in savings over time) taken into account in savings calculations (points 2 (i) and 5 (h) of Annex V to Directive 2012/27/EU) ⁽⁶⁾	Not applicable: the calculation of the economy is updated annually and automatically takes into account all previous improvements/deterioration. The measurement of actual consumption is carried out each year, and the corresponding saving is deducted from its comparison with the reference consumption corrected by the activity factors of the current year.
Main datasources used to calculate the savings	Individual annual monitoring audit of each entity under sectoral agreement, which federations pool in their indicators reported annually
Other sources of information or references (e.g. studies, evaluation reports) where more details and details about the savings calculations can be found	
Additionality and materiality (requirements related to points 2 and 5 (g) of Annex V to Directive 2012/27/EU)	
Description of the calculation methodology, including how additionality is taken into account in the calculation methodology (point 2 (a) of Annex V to Directive 2012/27/EU) ⁽⁷⁾	Firms in AdB undertake to make investments recommended by the audit whose return time (5 years) is much higher than that of spontaneous investments.
Does the policy measure promote early replacements? If so, how is it taken into account in the calculation of the savings? (point 2 (f) of Annex V to Directive 2012/27/EU)	Industry agreements aim at excellence in energy use (supporting exemplary companies in the energy transition). Early replacement is not specifically promoted, even if it can contribute to it.
Benchmarks used for determining and Scaled savings (point 1 (c) of Annex V to Directive 2012/27/EU)	In-depth audit and its annual follow-up audits, carried out by the auditor approved in accordance with the specific methodology of industry agreements, and validated by the Steering Committee assisted by the technical expert and verifiers
How is materiality of savings enforced? (point 3 (h) of Annex V to Directive 2012/27/EU)	The sectoral agreements methodology is in fact an energy management system whereby companies commit themselves to achieving energy and climate objectives that go well beyond the spontaneous effort. Their implementation is monitored annually by reference to the baseline situation and the impact of the actions resulting from the implementation of the recommendations of the in-depth audit is monitored (measured) precisely and annually in accordance with international standards. In the event of a drift, undertakings must take the necessary corrective measures, failing which they will be penalised financially for failure to honour their undertaking. This goes far beyond mandatory audit and spontaneous effort.

Possible overlaps (between policy measures and between individual actions) and double counting	
Possible overlaps between individual actions eligible to the policy measure ⁽⁸⁾	Not applicable: no obligation mechanism
Possible overlaps among the EEOS (if any) and alternative measure (s) reported to Article 7	Not applicable: no obligation mechanism
How are possible overlaps (among the EEOS, if any, and alternative measures) addressed to avoid any double counting of energy savings? (point 3 (g) of Annex V)	Not applicable: no obligation mechanism. The 2 Article 7 measures for enterprises are strictly complementary to each other and are aimed at exclusive targets. There is therefore no risk of double counting.
Climate variations (where relevant) (points 2 (h) and 5 (i) of Annex V to Directive 2012/27/EU)	
Are there climatic variations between regions? And can they affect the actions eligible to the policy measure?	Not applicable
How are climatic variations addressed in savings calculations where relevant?	Not applicable
Monitoring and verification (M & V) of savings (point 5 (j) of Annex V to Directive 2012/27/EU)	
Brief description of the monitoring & verification system and of the process of verification	To be confirmed for signature of the AdB3. The monitoring and verification mechanism for AdB2 has already been described for the period 2014-2020, mainly based on an in-depth audit and annual follow-up audits carried out by an auditor approved in accordance with a specific methodology, subject to validation and close monitoring carried out each year by the Branche Agreements Steering Committee, assisted by its methodological expert.
Authorities responsible for the M & V of the policy measure	Steering Committee for Branch Agreements and Transversal Cell, accompanied by Article 7
Independence of the M & V from the participating or entering parties (Article 7 (2) of Directive 2012/27/EU)	Ensured by the methodology of sectoral agreements, with the key role of the approved auditor, and the supervision by the Monitoring and Verification Committee, and the endorsement by the PAFR of the Transversal Committee Article 7
Verification of statistically representative samples (Article 7b (2) of Directive 2012/27/EU) ⁽⁹⁾	100 % desk check + site visit when required by decision of the Steering Committee
Publication of energy savings achieved each year under the policy measure (point 3 (e) of Annex V to Directive 2012/27/EU)	Official publication of the results in the annual report "Branch Agreements", incorporated in the annual report of the Transversal Committee Article 7
Penalties applied in case of non-compliance (and related references, including the law or other legal texts setting the penalties and related conditions)	Agreements are voluntary. Any company that does not meet its commitments is removed from the promised benefits. Specific penalties are also provided for in the contract.
Provision (s) in case the progress of the policy measure is not satisfactory (point 3 (f) of Annex V to Directive 2012/27/EU)	The Walloon Government will take appropriate measures

How are quality standards (for products, services and installation of measures) promoted or required by the policy measure?	Based on the concept of the 2nd generation Branch Agreements (3rd generation under preparation, the details of its implementation are not yet fixed): The auditors carrying out the initial audits as the basis for setting the objectives of each from enterprises are approved AMURE Agreement from branch. Audits must be carried out in accordance with the Sector Agreements methodological note (based on the Energy Scan principle, with ECA matrix "Energy consumption analysis") and systematised categorisation of recommendations according to their feasibility. technical and their profitability financial). Federations ensure consistency of application among their members and pool their commitments via one plan sector. The Expert technical valid the plans sectoral. The Steering Board shall steer the industry agreement and monitor the indicators and the trajectory towards objective with Federation and global. The company auditor certifies the materiality of the data used in the reports annual from enterprises The verifier, an independent consultancy firm, certifies the presence of the data and compliance with the methodology by federations and companies where applicable. The technical expert, appointed by means of a public contract, is the methodological reference, guarantor. from his relevance, and from its respect . methodology for each actor.
Supplementary information or explanations	
Any other information of explanation that can be useful for experience sharing	

Continued financial support for companies in transition to sustainable energy, with a particular focus on SMEs.

PAM Number	512
Name of the policy measure	Financial incentives "transition to sustainable energy" for service and industrial enterprises, non-ETS and industry agreements (mainly SMEs)
Type of policy measure	Financial incentives, energy services
Short description of the policy measure (including design features)	Investment aid schemes, such as energy vouchers (subsidy for studies on energy efficiency), the Amure programme (intervention in energy saving investments, insulation, ventilation, lighting, etc.); aid UDE – Sustainable use of energy (investment aid to improve production processes, use of renewable energy or cogeneration). The work of reform is in course for aid mechanisms to investment. Low-interest loan schemes (Wallonie-Entreprises), delegated mission of third party investors from the SRIW for the energy transition of companies, tax deductions and the development of Escos in favour of companies in transition to more sustainable energy (mainly SMEs)
Source (s) of information (including the reference of the related law or other legal text (s))	http://forms6.wallonie.be/formulaires/BrochureENV-UDE.pdf https://energie.wallonie.be/fr/aides-a-la-transition-energetique.html? IDC = 10313 & IDD = 165146 https://www.wallonie-entreprendre.be/ PRWProject 72: https://www.wallonie.be/fr/plans-wallons/plan-de-relance-de-la-Wallonia/Projects/Supporting la-Decarbonation-des-enterprises-0

Budget planned gold estimated, including the matching implementation period (s)	0
Expected savings for 2021-2030 and duration of the obligation period (s) (points 5 (d) and 5 (e) of Annex V to Directive 2012/27/EU))	
Expected cumulative end-use energy savings for the period 2021-2030 (ktoe)	4 400 GWhcum, i.e. 378 ktoecum
Expected new annual end-use energy savings (ktoe/year) ⁽¹⁾	80 GWh/year, or 6,880 ktoe/year
2021	
2022	
2023	
2024	
2025	
2026	
2027	
2028	
2029	
2030	
Intermediate period (s), where eligible ⁽²⁾	2021-2025: intermediate objective 1200 GWhcum (103,2 ktoecum)
Key design features	
Implementing public authorities, participating or entering parties and their responsibilities for implementing the policy measure (paragraphs 3 (b) and 5 (b)) of Annex V to Directive 2012/27/EU))	Government of Wallon, which delegates to its external administrations and operators
Target sectors (point 5 (c) of Annex V to Directive 2012/27/EU)) ⁽³⁾	Enterprises (mainly SMEs) in the industrial, tertiary and agricultural sectors, not subject to ETS quotas and not participating in branch agreements via a federation.
Individual actions eligible to the alternative measure (point 5 (f) of Annex V to Directive 2012/27/EU)) and corresponding lives (points 2 (i) and 5 (h) of Annex V to Directive 2012/27/EU) ⁽⁴⁾	ESU aid (rational use of energy), Novallia loans and financing, development of Escos, etc.
Specific policy measures or individual actions targeting energy poverty (where applicable)	not applicable
General information about the calculation methodology	

Measurement method (s) used (point 1 of Annex V to Directive 2012/27/EU) (5)	Loss savings or metered savings (in the case of energy performance contracting)
Metric (s) used to express the energy savings (primary or final energy savings) (point 3 (d) of Annex V to Directive 2012/27/EU)	Final energy saving
How are they (and possible changes in savings over time) taken into account in savings calculations (points 2 (i) and 5 (h) of Annex V to Directive 2012/27/EU) (6)	Not applicable in the case of energy performance contracting, as the saving is measured annually against a baseline. In other cases, the lifespan of the equipment concerned by the action is taken into account directly (straightforward) individually, action by action. These service life periods shall be in accordance with either document CWA 15693: 2007 for ESD 2006/32 or EN 15459: 2017 as appropriate.
Main datasources used to calculate the savings	Case handlers database
Other sources of information or references (e.g. studies, evaluation reports) where more details and details about the savings calculations can be found	0
Additionality and materiality (requirements related to points 2 and 5 (g) of Annex V to Directive 2012/27/EU)	
Description of the calculation methodology; including how additionality is taken into account in the calculation methodology (point 2 (a) of Annex V to Directive 2012/27/EU) (7)	The aid is specifically granted to cover additional costs compared to a reference standard, not the full investment.
Does the policy measure promote early replacements? If so, how is it taken into account in the calculation of the savings? (point 2 (f) of Annex V to Directive 2012/27/EU)	Early replacement is one of the possible actions, but companies in transition usually go well beyond mere replacement. Since the impact calculation takes into account a reference, the early replacement shall not be taken into account.
Benchmarks used for determining and Scaled savings (point 1 (c) of Annex V to Directive 2012/27/EU)	Internal standards based on eco-design or BREF & BAT in accordance with the Industrial Emissions Directive (IED)
How is materiality of savings enforced? (point 3 (h) of Annex V to Directive 2012/27/EU)	The aid is specifically granted to cover additional costs compared to a reference standard. This aid is therefore clearly the driving force to go beyond the standard.
Possible overlaps (between policy measures and between individual actions) and double counting	
Possible overlaps between individual actions eligible to the policy measure (8)	Not applicable: no obligation mechanism
Possible overlaps among the EEOS (if any) and alternative measure (s) report to Article 7	Not applicable: no obligation mechanism
How are possible overlaps (among the EEOS, if any, and alternative measures) addressed to any double counting of energy savings? (point 3 (g) of Annex V)	Not applicable: no obligation mechanism. The 2 Article 7 measures for enterprises are strictly complementary to each other and are aimed at exclusive targets. There is therefore no risk of double counting (screening of cases under this M04 measure to ensure that there are no companies in agreement with a branch in the impact calculation)

Climate variations (where relevant) (points 2 (h) and 5 (i) of Annex V to Directive 2012/27/EU)	
Are there climatic variations between regions? And can they affect the actions eligible to the policy measure?	Not applicable
How are climatic variations addressed in saving calculations where relevant?	Not applicable
Monitoring and verification (M & V) of savings (point 5 (j) of Annex V to Directive 2012/27/EU)	
Brief description of the monitoring & verification system and of the process of verification	CF measure ALTM00 Monitoring and the creation of a transversal cell under Article 7.
Authorities responsible for the M & V of the policy measure	Horizontal Committee Article 7
Independence of the M & V from the participating or entering parties (Article 7 (2) of Directive 2012/27/EU)	Article 7 of the Transversal Committee acts as methodological guarantor and supervisory authority, while ensuring that each of the authorities responsible for implementing a contributing measure is properly responsible for the obligation to implement a contributing measure.
Verification of statistically representative samples (Article 7 (2) of Directive 2012/27/EU) ⁽⁹⁾	100 % based on statistical indicators
Publication of energy savings achieved each year under the policy measure (point 3 (e) of Annex V to Directive 2012/27/EU)	Article 7 annual report of the Transversal Committee, sent to the Minister for Energy and, where appropriate, to the Government.
Penalties applied in case of non-compliance (and related references, including the law or other legal texts setting the penalties and related conditions)	The legal framework of each contributing measure (obligation or incentive) provides for a financial penalty and/or reimbursement of incentives unduly received by the beneficiary if the beneficiary has not complied with the taxes.
Provision (s) in case the progress of the policy measure is not satisfactory (point 3 (f) of Annex V to Directive 2012/27/EU)	On the basis of the findings and recommendations of Article 7 of the Transversal Committee, the Walloon Government will take appropriate measures (amendment/reinforcement of the initial measure or additional measure) in order to ensure that the cumulative objective for the whole mechanism is achieved in 2030.
Information about quality standards (point 2 (g) of Annex V to Directive 2012/27/EU)	
How are quality standards (for products, services and installation of measures) promoted or required by the policy measure?	The measure only values actions going beyond energy standards
Supplementary information or explanations	
Any other information of explanation that can be useful for experience sharing	0

- Energy poverty, bringing together actions targeting exclusively precarious households.

PAM Number	505
Name of the policy measure	Reducing energy poverty
Type of policy measure	Grant Schemes
Short description of the policy measure (including design features)	Part of the renovation of public and social housing in Walloon Strathéno, in line with the Walloon Poverty Reduction Plan (PLCP). This includes the energy renovation plans of the housing companies managed by the Société Wallonne du Housing (SWL), social property agencies and neighbourhoods.
Source (s) of information (including the reference of the related law gold other legal text (s))	https://www.wallonie.be/fr/actualites/ureba-les-batiments-publics-sEngent-dans-la-renovation-energetic ; http://luttepauvrete.wallonie.be/sites/default/files/Plan%20Fight%20st%20C3%20A9_document%20complete%20_March%202018.pdf
Budget planned or estimated, including the matching implementation period (s)	0
Expected savings for 2021-2030 and duration of the obligation period (s) (points 5 (d) and 5 (e) of Annex V to Directive 2012/27/EU))	
Cumulative expected SNE — use energy savings for the period 2021-2030 (ktoe)	2.750 GWhcum, i.e. 236 ktoecum
Expected new annual end-use energy saving (ktoe/year) ⁽¹⁾	50 GWh per year, i.e. 4.30 ktoe
2021	
2022	
2023	

2024	
2025	
2026	
2027	
2028	
2029	
2030	
Intermediate period (s), where eligible ⁽²⁾	2021-2025: intermediate objective 750 GWhcum (64.47 ktoecum)
Key design features	
Implementing public authorities, participating gold Entrusted Parties and their responsibilities for implementing the policy measure (points 3 (b) and 5 (b) of Annex V to Directive 2012/27/EU)	Government of Wallon, which delegates to its external administrations and operators
Target sectors (item 5 (c) of Annex V to Directive 2012/27/EU) ⁽³⁾	Residential, precarious households
Individual eligible actions to the alternative measure (point 5 (f) of Annex V to Directive 2012/27/EU)) and corresponding lifetimes (points: 2 (l) and 5 (h) of Annex V to	Programme for the deep renovation of the public housing stock (SLSP); Subsidies to social estate agencies and energy performance criteria to reach if works Housing subsidies linked to communal anchoring and performance criteria class to reach if works PAPE and mebar energy support programmes set up by the CPAS

Directive 2012/27/EU)) ⁽⁴⁾	
Specific policy measures gold individual actions target energy poverty (where applicable)	All these actions, since this measure was designed precisely to bring together actions to combat energy poverty.
General information about the calculation methodology	
Measurement method (s) used (point 1 of Annex V to Directive 2012/27/EU)) ⁽⁵⁾	‘Loss savings’ in the case of financial incentives and legal obligations: the saving shall be calculated on the basis of the actual technical details of the individual improvement compared to an average reference consumption established for the corresponding building typology. The calculation is in line with the EPB methodology, based on the evolution of the EPB indicators defined and monitored by Stratrénio by building typology, and with a correction coefficient between theoretical EPB consumption and actual consumption. established for this type from building. ‘Delivered savings’ in the case of energy performance certificates: the economy is checked on the basis of the consumption actually measured, compared to the baseline adjusted for the activity factors.
Metric (s) used to express the energy savings (primary or final) energy saving) (point 3 (d) of Annex V to Directive 2012/27/EU)	Final energy saving
How are lifetimes (and possible changes in savings over time) taken into account in savings calculations (points 2 (i) and 5 (h) of Annex V to Directive 2012/27/EU)) ⁽⁶⁾	“STRAIGHTFORWARD method” for financial obligations and incentives: the calculated EE shall be applied from the year of the action as many times as the lifetime of the action allows. Lifespans depend on the type of action and are in line with CWA 15693: 2007 for ESD 2006/32 Not applicable in the case of energy performance contracts with guarantee over time: the one-off EF is checked annually and takes into account all previous improvements/deterioration.
Main datasources used to calculate the savings	Technical details by file of individual actions implemented in the context of renovation obligations and financial incentives, as available in the managers’ databases (bonuses energy/rehabilitation, Ecopack and Ureba, etc.) and in monitoring indicators put in place with the legislation EPB.

	Actual building consumption and demonstrated performance in the case of energy performance certificate files
Other sources of information gold references (e.g. studies, evaluation reports) where more explanations and details about the saving calculations can be found	EPB methodology; Baseline by typology defined by EPB tools (certificates, audits, COZEB study)
Additionality and materiality (requirements related to points 2 and 5 (g) of Annex V to Directive 2012/27/EU)	
Description of the calculation methodology; including how additionality is taken into account in the calculation methodology (item 2 (a) of Annex V to Directive 2012/27/EU) ⁽⁷⁾	Not applicable: Measures against energy poverty are specifically part of the renovation strategy to boost energy renovation of buildings, which is eligible without restriction
Does the policy measure promote early replacements? If so, how is it taken into account in the calculation of the savings? (point 2 (f) of Annex V to Directive 2012/27/EU)	Significant increase in renovation rate (> 3 %/year).
Benchmarks used for determining and Scaled savings (in case removal or scaled savings are used) (point 1 (c) of Annex V to Directive 2012/27/EU))	COZEB study, EPB certification databases and EPB audit + Walloon energy balances

How is materiality of saving enforced? (item 3 (h) of Annex V to Directive 2012/27/EU))	Calculation of the impact of each dossier on the basis of the individual technical data available. Documentary verification carried out at 100 % on the basis of invoices for the corresponding works.
Possible overlaps (between policy measures and between individual actions) and double counting	
Possible overlaps between individual actions eligible to the policy measure ⁽⁸⁾	Not applicable: no obligation mechanism
Possible overlaps among the EEOS (if any) and alternative measure (s) reported to Article 7	Not applicable: no obligation mechanism
How are possible overlaps (among the EEOS, if any, and alternative measures) addressed to avoid any double tackling of energy savings? (point 3 (g) of Annex V)	Not applicable: no obligation mechanism. In order to avoid any risk of double counting, measures to alleviate energy poverty and their impact are isolated to this extent (and therefore excluded from AltM01Stratréno).
Climate variations (where relevant) (points 2 (h) and 5 (i) of Annex V to Directive 2012/27/EU))	
Are there climatic variations between regions? And can they affect the eligible actions to the policy measure?	Not applicable: Belgian average value (Uccle)
How are climatic variations addressed in savings calculations where relevant?	Not applicable: Belgian average value (Uccle)

Monitoring and verification (M & V) of savings (point 5 (j) of Annex V to Directive 2012/27/EU)	
Brief description of the monitoring & verification system and of the process of verification	CF measure ALTM00Monitoring and the creation of a transversal cell under Article 7.
Authorities responsible for the M & V of the policy measure	Horizontal Committee Article 7
Independence of the M & V from the participation gold Entrusted Parties (Article 7 (2) of Directive 2012/27/EU)	Article 7 of the Transversal Committee acts as methodological guarantor and supervisory authority, while ensuring that each of the authorities responsible for implementing a contributing measure is properly responsible for the obligation to implement a contributing measure.
Verification of statistically representative samples (Article 7b (2) of Directive 2012/27/EU) ⁽⁹⁾	100 % on a documentary basis, with possibility of on-site verification in case of doubt
Publication of energy saving achieved each year under the policy measure (item 3 (e) of Annex V to Directive 2012/27/EU)	Article 7 annual report of the Transversal Committee, sent to the Minister for Energy and, where appropriate, to the Government.
Penalties applied in case of non-compliance (and related references, including the law or other legal texts setting the penalties and related conditions)	The legal framework of each contributing measure (obligation or incentive) provides for a financial penalty and/or reimbursement of incentives unduly received by the beneficiary if the beneficiary has not complied with the taxes.

Provision (s) in case the progress of the policy measure is not pleastory (point 3 (f) of Annex V to Directive 2012/27/EU)	On the basis of the findings and recommendations of Article 7 of the Transversal Committee, the Government Walloon take the measures adequate (amendment/reinforcement from the measurement initial or measurement complementary), in order to ensure the achievement of the cumulative objective for the whole mechanism in 2020
Information about quality standards (point 2 (g) of Annex V to Directive 2012/27/EU)	
How are quality standards (for products, services and installation of measures) promoted gold required by the policy measure?	Each action under this measure provides for the imposition of minimum technical criteria, either on a per component basis or at the level of the overall performance to be achieved.
Supplementary information or explanations	
Any other information of explanation that can be useful for experience sharing	0

- Light plan 4.0 for the modernisation and maintenance of public lighting equipment, both regional and municipal.

a PAM Number	511
Name of the policy measure	Urban Plan 4.0 for regional lighting and public service obligation "Elighrage communal" of Walloon distribution system operators
Type of policy measure	Investment programme and public service obligation
Short description of the policy measure (including design features)	Public private partnership contract between SOFICO (public motorway network manager) and LUWA consortium for the modernisation of public lighting equipment in the Walloon road network for the gradual commissioning and maintenance of new smart lighting (modulation of light intensity) according to the traffic and the cases customary). Public service obligation for the maintenance of street lighting at the municipal level by distribution system operators.
Source (s) of information (including the reference of the related law or other legal text (s))	Amendment of the AGW public service obligation concerning the maintenance of street lighting, adpoted with the Government Walloon the 14 September 2017. https://www.wallonie.be/fr/actualites/plan-lumieres-40-les-travaux-ont-demarre

Budget planned or estimated, including the matching implementation period (s)	Map Lumière 4.0: EUR 600 million over 20 years
Expected savings for 2021-2030 and duration of the obligation period (s) (points 5 (d) and 5 (e) of Annex V to Directive 2012/27/EU))	
Expected cumulative end-use energy savings for the period 2021-2030 (ktoe)	660 GWhcum, i.e. 57 ktoecum
Expected new annual end-use energy savings (ktoe/year) ⁽¹⁾	13 GWh/year (1.1 ktoe/year)
2021	
2022	
2023	
2024	
2025	
2026	
2027	
2028	
2029	
2030	
Intermediate period (s), where eligible ⁽²⁾	0
Key design features	
Implementing public authorities, participating or entering parties and their responsibilities for implementing the policy measure (points 3 (b) and 5 (b) of Annex V to Directive 2012/27/EU)	Government of Wallon, which delegates to its external administrations and operators, in this specific case SOFICO and DSOs
Target sectors (point 5 (c) of Annex V to Directive 2012/27/EU)) ⁽³⁾	Tertiary sector – street lighting
Individual actions eligible to the alternative measure (point 5 (f) of Annex V to Directive 2012/27/EU)) and corresponding lives (points 2 (i) and 5 (h) of Annex V to Directive 2012/27/EU)) ⁽⁴⁾	Walloon Government Light Plan 4.0 Investment Plan for the structuring network (motorways) and no structuring (national) Public service obligation on DSOs for the maintenance and renewal of public luminaires on the municipal network
Specific policy measures or individual actions targeting energy poverty (where applicable)	not applicable
General information about the calculation methodology	
Measurement method (s) used (point 1 of Annex V to Directive 2012/27/EU)) ⁽⁵⁾	Built-in savings or built-in savings

Metric (s) used to express the energy savings (primary or final energy savings) (point 3 (d) of Annex V to Directive 2012/27/EU)	Final energy saving
How are life-saving (and possible changes in savings over time) taken into account in savings calculations (paragraphs 2 (i) and 5 (h)) of Annex V to Directive 2012/27/EU) ⁽⁶⁾	Taking into account a lifetime of 15 years for any specific action going beyond standards (e.g.: dimming) and taking into account a lifetime of 3 years for early replacement (LED)
Main datasources used to calculate the savings	Monitoring the deployment schedule and comparative data on consumption and performance of replaced and new equipment. Source: implementing authority (SPW infrastructure and Walloon electricity market regulator CWAPE)
Other sources of information gold references (e.g. studies, evaluation reports) where more explanations and details about the savings calculations can be found	0
Additionality and materiality (requirements related to points 2 and 5 (g) of Annex V to Directive 2012/27/EU)	
Description of the calculation methodology; including how additionality is taken into account in the calculation methodology (point 2 (a) of Annex V to Directive 2012/27/EU) ⁽⁷⁾	Taking into account a reduced lifespan of 3 years for the LED-related economy on the basis of early replacement, but taking into account all the 15 years of service life recommended by the standards (CWA 15693: 2007) for floating shares
Does the policy measure promote early replacements? If so, how is it taken into account in the calculation of the savings? (point 2 (f) of Annex V to Directive 2012/27/EU)	In fact. The request for this early replacement is explained above.
Benchmarks used for determining and Scaled savings (in case removal or scaled savings are used) (point 1 (c) of Annex V to Directive 2012/27/EU)	
How is materiality of savings enforced? (point 3 (h) of Annex V to Directive 2012/27/EU)	The measures whose impact is valued result either from obligations laid down by the Walloon Government or from public contracts awarded directly by its administration.
Possible overlaps (between policy measures and between individual actions) and double counting	
Possible overlaps between individual actions eligible to the policy measure ⁽⁸⁾	Not applicable: no obligation mechanism
Possible overlaps among the EEOS (if any) and alternative measure (s) report to Article 7	Not applicable: no obligation mechanism
How are possible overlaps (among the EEOS, if any, and alternative measures) addressed to avoid any double counting of energy savings? (point 3 (g) of Annex V)	Not applicable: no obligation mechanism. The risk of double counting is avoided because public lighting is not targeted by any other measure under Article 7 (Stratréno, mobility, businesses, poverty)
Climate variations (where relevant) (points 2 (h) and 5 (i) of Annex V to Directive 2012/27/EU)	

Are there climatic variations between regions? And can they affect the actions eligible to the policy measure?	Not applicable
How are climatic variations addressed in savings calculations where relevant?	Not applicable
Monitoring and verification (M & V) of savings (point 5 (j) of Annex V to Directive 2012/27/EU))	
Brief description of the monitoring & verification system and of the process of verification	CF measure ALTM00Monitoring and the creation of a transversal cell under Article 7.
Authorities responsible for the M & V of the policy measure	Horizontal Committee Article 7
Independence of the M & V from the participation gold Entrusted parties (Article 7 (2) of Directive 2012/27/EU)	Article 7 of the Transversal Committee acts as methodological guarantor and supervisory authority, while ensuring that each of the authorities responsible for implementing a contributing measure is properly responsible for the obligation to implement a contributing measure.
Verification of statistically representative samples (Article 7 (2) of Directive 2012/27/EU) ⁽⁹⁾	100 % based on statistical indicators
Publication of energy savings achieved each year under the policy measure (point 3 (e) of Annex V to Directive 2012/27/EU)	Article 7 annual report of the Transversal Committee, sent to the Minister for Energy and, where appropriate, to the Government.
Penalties applied in case of non-compliance (and related references, including the law or other legal texts setting the penalties and related conditions)	The legal framework of each contributing measure (obligation or incentive) provides for a financial penalty and/or reimbursement of incentives unduly received by the beneficiary if the beneficiary has not complied with the taxes.
Provision (s) in case the progress of the policy measure is not satisfactory (point 3 (f) of Annex V to Directive 2012/27/EU)	On the basis of the findings and recommendations of Article 7 of the Transversal Committee, the Walloon Government will take appropriate measures (amendment/reinforcement of the initial measure or additional measure) in order to ensure that the cumulative objective for the whole mechanism is achieved in 2030.
How are quality standards (for products, services and installation of measures) promoted or required by the policy measure?	The measure only values actions going beyond energy standards (moderation of demand, early replacement)
Supplementary information or explanations	
Any other information of explanation that can be useful for experience sharing	0

The breakdown of these contributing measures was designed mainly on a sectoral basis in order to avoid recoveries and thus the risk of double impact counting.

A cross-cutting working group “inter-administration” (or cross-departmental committee) shall be set up in order to:

- Identification of the eligible contributing measures and estimating the ex-ante impact.

- The establishment of an overall methodological framework for assessing the impact of contributing measures, in line with Article 7 EED 2012/27/EU and compatible with other reporting requirements (PWE, PACE, Climate Decree, DPR, etc.).
- Identification of monitoring and output indicators (status) of the various contributing actions/measures and methodological details to derive individual impact indicators.
- Setting up tools for collecting and processing these monitoring, output and impact indicators.
- The reporting to monitor the implementation of these actions/measures, and the monitoring of the trajectory towards the intermediate cumulative target of 2025, and the overall target of 2030.
- In consultation with the coordination unit (AWAC + SPW Energie) and the steering committee, drawing up recommendations to the Minister for Energy and the Walloon Government in the event of a deviation from the expected trajectory.

By way of information, the total cumulative and annual savings expected for each measure are as follows:

Measurement	Name of measure	Estimated annual impact in GWh/year	annual impact estimates in ktoe/year	Cumulative contribution expected over the period in ktoecum and GWhcum between 2021 and 2030
0				
AIM00	Monitoring and verification unit (Transersal working group) Strategy for the long-term	0 between 100 and 700	0	GWhcum
AIM01 – WFP 206	renovation of the Walloon building stock Implementation of the FAST vision through the	300	between 8,60 and 60,19	18.150 1.561 33.0 %
AIM02 – WFP 207	Regional Mobility Strategy (SRM) Voluntary agreements with industry	between 100 and 350	25,80	16.500 1.419 30.0 %
AIM03 – WFP 105	Incentives for 'sustainable energy transition' for companies Specific measures against	80	between 8,60 and 30,09	12.500 1.075 22.7 %
AIM04 – WFP 512	energy poverty	50	6,88	4.400 378 8.0 %
AIM05 – WFP 505		13	4,30	2.750 236 5.0 %
AIM06- WFP 511	Lumière 4.0 plan and public service obligation "Lighting communal"		1,12	660 57 1.2 %
Total expected:				54.960.1

Brussels Capital Region

This is only a short description of the measures and more details to be provided for the NECP are contained in notification MNE (2021) 02787 of 220/04/2021.

As an alternative to the establishment of an energy efficiency obligation scheme, a series of existing or new measures have been selected by the Government of the Brussels-Capital Region in order to achieve energy savings for final customers. The annual amount of new energy savings achieved through this approach is equivalent to the amount of new energy savings required under the default approach.

The measures that contribute to the energy savings effort required by Article 7, existing within the Region, have been selected on the basis of the eligibility criteria of the Directive. In particular, all measures shall be measurable, verifiable and verifiable.

The 'Air, Climate and Energy' Department of Brussels Environment coordinates and monitors the impact of the various measures, which will enable the Region, where appropriate, to select new measures meeting the conditions laid down in the article. The Government shall be responsible for adopting corrective measures, if necessary, in order to achieve the energy saving target set under Article 7.

The savings generated by the measures taken by the parties concerned shall result in savings under Article 7, which would not have occurred if the measures put in place towards final consumers had not been taken. The amount of energy savings required shall be expressed in terms of final energy consumption in gigawatt-hour (GWh). Energy savings have been determined using the methods and principles set out in Annex V of the Energy Efficiency Directive. Additionality and materiality were verified. Given that the area covered by the Brussels-Capital Region is concerned, it was not considered appropriate to apply a climate variation as suggested (i) in the Energy Efficiency Directive.

Periodic inspection of heating systems

This regulatory provision consists of an obligation to carry out periodic checks on boilers in accordance with the Brussels Air, Climate and Energy Control Code (COBRACE) (Articles 2.2.15 to 2.2.17 and 2.5.1 to 2.5.5) and the Decree of the Government of the Brussels-Capital Region of 21 June 2018 on the control and maintenance of heating and air-conditioning systems and the approval of persons carrying out these acts. This measure applies to the residential and tertiary sectors.

More specifically, the periodic inspection of boilers consists of cleaning of all the components of the boiler and the smoke evacuation system, the adjustment of the burner and the verification of compliance with the EPB requirements. Oil-fired boilers must be checked annually and natural gas boilers must be controlled every two years.

In view of the revision of the Energy Efficiency Directive, the Brussels Region will revise this measure to take into account the new criteria of Article 7.

Reception of heating systems

This regulatory provision applies to the residential and tertiary sectors.

A complete check of the heating system shall be carried out upon receipt of a new boiler in order to optimise its operation. The purpose of this acceptance is to check its correct installation with regard to regulation, insulation of ducts, ventilation of the heating room, the quality of the combustion and gases emitted, and the draught of the stack.

According to Article 2.1.1 of the Decree of the Government of the Brussels-Capital Region of 21 June 2018 on the control and maintenance of heating and air-conditioning systems and the approval of persons performing these acts, the reception of the heating system is carried out after the installation or replacement of a boiler.

In view of the revision of the Energy Efficiency Directive, the Brussels Region will revise this measure to take into account the new criteria of Article 7.

Local Action Plan for Energy Management (PLAGE)

This regulatory provision is made mandatory by the Brussels Air, Climate and Energy Management Code (COBRACE – adopted on 2 May 2013), in Articles 2.2.21 to 2.2.24 and 2.4.3.

The aim of this provision is to ensure that managers of large real estate, whether public or private, put in place better energy management of their assets, by means of:

- The establishment of the energy register of buildings owned or occupied by the body
- The introduction of energy accounting for these buildings;
- Drawing up and implementing a programme of actions with a view to achieving the objective of reducing energy consumption this plan will include actions related to the management and maintenance of building facilities and investments.

The arrangements for implementing PLAGE are laid down in several decrees¹⁰⁶. This provision has been implemented since 1 July 2019. The first energy cadastres are expected in 2021.

Energy audits

That regulatory provision, laid down in Article 6 of the Decree of the Government of the Brussels-Capital Region of 8 December 2016 on the energy audit of large undertakings and the energy audit of the environmental permit, provides that applications for renewal of environmental permits are to be accompanied by an energy audit, where they concern an establishment comprising one or more buildings with a total area not allocated to the dwelling of more than 3 500 m². In addition, environmental permit holders have an obligation to implement the measures identified that have a return time of less than 5 years.

Energy bonuses

Energy premiums are regional aid available to any natural or legal person with a right in rem or to rent or manage immovable property established in the Brussels-Capital Region for works that reduce energy consumption.

These premiums are modulated according to household incomes and stimulate, in particular, insulation work and investments in efficient thermal control systems.

RenoClick

Rénoclick is a regional support programme (technical and financial) designed to reduce energy consumption in the buildings of local and regional authorities in Brussels. This project is in line with the intention of the Brussels Government to provide the Brussels public authorities with a framework for energy saving measures.

The RénoClick project was included in the public service tasks entrusted to the distribution system operator in the Ordinance on the electricity market, Article 24a (1). The project is based on three pillars: energy accounting via the RénoClick scan tool; the central market; energy efficiency. The energy saving measures continue to produce their effects after the end of the project

Improving the energy performance of street lighting

Under Article 24a (1) (2) of the Ordinance of 19 July 2001 on the organisation of the electricity market in the Brussels-Capital Region, the distribution system operator (Sibelga) is entrusted with a public service mission relating to the construction, maintenance and renewal of public lighting installations on roads and in municipal public spaces. This mission includes:

1. The construction and renewal of the luminaire stock (and of the low-voltage network specifically intended for street lighting).
2. Preventive and corrective maintenance of the installations.
3. Consumption of street lighting.

This mission includes energy efficiency improvement objectives.

The Regional Mobility Plan 2020-2030 Good Move

In order to provide an innovative and coherent response to the mobility challenge, the Brussels-Capital Region has chosen to guide the design of its mobility plan to users in order to provide them with adapted, facilitated and integrated mobility solutions enabling them to choose the most efficient mode of travel for each of their journeys.

The Order of 26 July 2013¹⁰⁷ gives regulatory value to the Regional Mobility Plan (PRM). The Good Move

Plan (Regional Mobility Plan 2020-2030) is a strategic and operational instrument for guiding and implementing mobility policy.

An evaluation of the implementation of the MRP is planned every 30 months. On the basis of this report, the Government determines the corrective measures to be taken (Article 10). The ambitions to be met by mobility policy have been categorised in different urban challenges.

Three of them have energy efficiency impacts:

- Reducing the impact of mobility on the environment (GREEN)
- Designing mobility conducive to socio-economic development and supply to the Region (PERFORMANT)
- Developing mobilities that optimise resources (EFFICIENT)

Energy savings in public transport (Société de transports intercommunaux Bruxelles – STIB)

STIB has embarked on the twin challenge of increasing its transport offer while reducing its CO2 emissions and energy consumption. After four years of collaborative work, STIB has developed a carbon and energy strategy for 2030. This strategy is based on a perimeter established in accordance with the international standards in force and covering both direct emissions and part of indirect emissions. On the basis of an initial diagnosis carried out for 2010, the identification of influence parameters and a set of actions, STIB examined different scenarios which would enable it to reduce its emissions compared to a baseline scenario.

II. Long-term renovation strategy to support the renovation of the national stock of public and private residential and non-residential buildings (4), including policies, measures and actions to encourage cost-effective deep renovations and policies and actions to address the worst performing segments of the national building stock, in accordance with Article 2a of Directive 2010/31/EU.

Flemish Region

With a share of 28 % (2022 progress report), Flemish buildings are the second largest contributor to total ESR greenhouse gas emissions in Flanders. Thus, in order to move towards a low-carbon society by 2050, significant efforts are still needed to make the building sector more sustainable through deep renovation and the transition to sustainable heating.

The Long Term Renovation Strategy (LTRS) was adopted on 29 May 2020. The overall ambition of the long-term renovation strategy is aligned with the ambitions of the Flemish Climate Strategy 2050. We aim to reduce emissions from the Flemish building stock to 2,3 MtCO₂eq by 2050, with the following targets:

- 1. Residential buildings:** by 2050, existing residential buildings must achieve energy performance levels similar to those of new buildings for which permit applications were submitted in 2015. On the CPE energy scale used (A to F), this corresponds to label A by 2050 for the entire building stock (maximum CPE label of 100). It also aims to make heating more sustainable, while managing energy consumption through digitalisation.
- 2. Non-residential buildings:** aim for a carbon-neutral building stock for heating, domestic hot water, cooling and lighting by 2050, with authorities expected to lead by example. Public office buildings

need to meet the long-term goal of a carbon-neutral building stock already in 2045 to live up to their exemplary role. Semi-public buildings (schools, health) and private buildings (offices, commerce, hotels, etc.) have up to 2050 to meet the long-term objective.

These efforts will also continue after 2050 to make our building stock fully climate-neutral as soon as possible after 2050.

The strategy places a strong emphasis on deep renovations at times of natural opportunity, such as transactions (sale, inheritance, gift, etc.) or the start of a new lease. Harnessing the potential of these key moments contributes significantly to the overall strategic objective of achieving the planned renovation rate between now and 2050. Increasing renovation rates outside these key moments is also a constant concern.

Floor area to be renovated or equivalent annual energy savings from 2020 to 2030 in central government.

The Flemish Authority has chosen the alternative approach to implement Article 5 of the Energy Efficiency Directive, which aims to achieve at least equivalent annual savings when renovating 3 % of the useful floor area of buildings that do not yet meet the minimum energy performance requirements in force.

Buildings which meet all the criteria below fall within the scope of this Directive:

- Buildings owned by the Flemish Authority.
- Buildings used by the Flemish Authority.
- Buildings that are heated/cooled.
- Buildings with a floor area of more than 250 m².
- Buildings that do not meet the current minimum energy performance requirements.
- Buildings which are not in one of the exceptional cases, as referred to in Article 5 (2) of the Energy Efficiency Directive.

In order to monitor this renovation objective, all entities belonging to the Flemish Authority are required to submit the following information to the VEKA annually via the Terra-databank de la Vlaams Energiebedrijf (VEB):

- An inventory of their properties indicating useful floor area and energy performance.
- the energy saving measures implemented and their compliance with the requirements of energy performance
- the planned energy saving measures and their compliance with the requirements of energy performance

2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
182	176	171	166	161	156	151	147	142	138

Table 4-1 Equivalent estimated annual energy savings in GWh from 2020 to 2030 in accordance with Article 5 EED

Indicative energy savings milestones for 2030, 2040 and 2050

The roadmap proposed in the long-term renovation strategy included indicative milestones for 2030, 2040

and 2050 and specified how they contribute to the achievement of the Union's energy efficiency targets under Directive 2012/27/EU.

Residential

Based on the current distribution of residential buildings between the different EPC labels, it has been found that, on an annual basis between 2020 and 2050, an average of more than 3 % of the building stock has to be changed to label A (current average, D).

Three scenarios were examined and, on the basis of these, conclusions were drawn as to the impact of each scenario on the way forward to achieve the 2050 target:

1. Option 1: Phasing out worst-performing housing;
2. Option 2: Scenario 1, complemented by harnessing the potential of key moments
3. Option 3: Scenario 2, complemented by the encouragement of deep renovation, independent of key moments

Maintaining the 75 % improvement in the energy performance of the building stock by 2050. In 2030, in scenario 1 (red) where the focus is on improving energy performance by 1 label, this improvement remains limited to 18 %. For scenario 2 (yellow), this figure rises to 26 % and for scenario 3 (green) it is still increasing to 33 %.

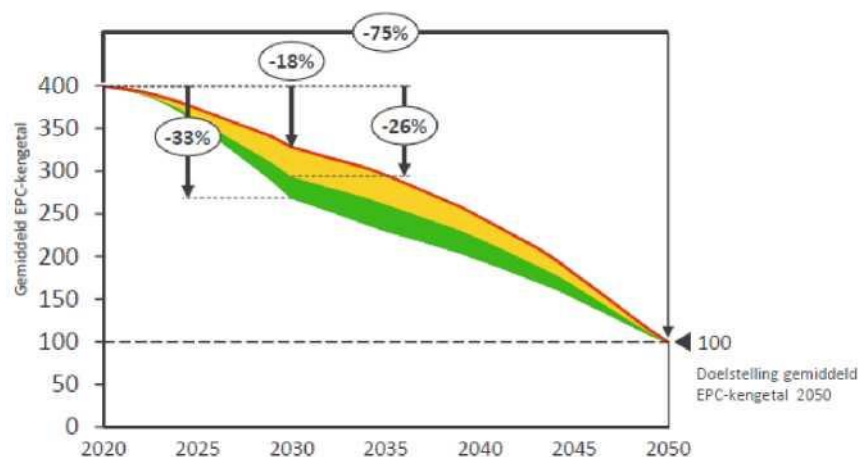


Figure 4-1. Evolution of the energy performance of the building stock in the three renovation scenarios

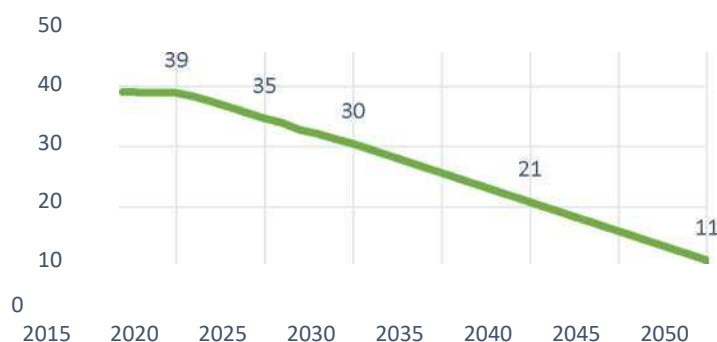
Scenario 3 offers the most balanced option, spreading efforts in a broad and uniform way. Several policy instruments have been developed in recent years to respond specifically to the triple objective of this scenario. The aim is to combine a considerable improvement in energy efficiency through insulation of the building envelope with more sustainable heating systems (phase-out of fuel oil and coal). Indicative milestones for final energy consumption for heating and domestic hot water:



2015 2020 2025 2030 2035 2040 2045 2050

Indicative milestones for Flemish consumption:

fossil fuels in residential buildings



Indicative milestones for greenhouse gas emissions in Flemish residential buildings:



Non-residential buildings

The strategy for non-residential buildings assumes that the drastic reductions in energy consumption envisaged for residential buildings are difficult to achieve. This is partly due to the typology of buildings and partly to their use. Overall, the long-term renovation strategy aims to reduce energy consumption by 33 % by 2050 compared to 2020. For non-residential buildings, the focus is on moving towards carbon neutrality for heating, domestic hot water, cooling and lighting.

The following figures show the steps in the reduction of final energy consumption and greenhouse gas emissions. The GHG emissions milestones for 2030 coincide with the milestones of the WAM scenario of the Flanders Energy and Climate Plan 2021-2030 (3.1 Mt CO₂ equivalent in 2020, decreasing to 2,6 in 2030, i.e. a reduction of 27 % over this period).

Long-term strategies in transport and heating/cooling

Transport

Reference is made in this regard to the Transport chapter in the Decarbonisation dimension.

Heating and cooling

The transition to sustainable heating in our buildings by 2050 is an integral part of the long-term renovation strategy. To reach the 2050 target, the use of energy in general and fossil fuels in particular for heating will

have to decrease significantly over the next 30 years.

There will always be a residual energy demand in all types of buildings. The Flemish Region aims to continue the sustainability of heating. As far as possible, our buildings are heated with waste heat or green heat obtained through district heating networks. By 2050, the maximum amount of industrial waste heat will be recovered. Heat that can no longer be used in industry is used as much as possible via heat networks for the heating of buildings or other sectors such as agriculture. The potential of these collective heating systems is enhanced by smart land use planning that encourages tightening of nuclei and group habitat. The regulatory framework, the EPB rules and the support framework are assessed in order to give greater impetus to the development of district heating networks powered by green and waste heat. For more distant or dispersed buildings, district heating networks are less efficient and solar thermal and electrification are chosen (mainly through heat pumps). The Long Term Renovation Strategy contains further detailed details on the approach to heating and cooling.

Wider benefits and progress indicators

To this end, we refer to the passage from the Long Term Renovation Strategy (section 6.3, pp. 100-106). A list of progress indicators is available in the same document (section 5.5, pp. 95-97).

Region Walloon

The building accounts for 37 % of final energy consumption and 20 % of GHG emissions³⁰³. That is why Wallonia has committed itself to investing heavily in the deep renovation of its buildings, residential, public and tertiary buildings.

The Walloon strategy for the long-term energy renovation of buildings (SRLT), adopted by the Walloon Government in November 2020, is a key link in the GHG emission reduction policies to which Wallonia has committed itself. It proposes a panel of measures and actions to move towards the³⁰⁴ average decarbonised EPB label A for the entire residential stock in 2050, and an energy-efficient and carbon-neutral tertiary building stock (for heating, domestic hot water, cooling and lighting) in 2040. It also establishes coherence and coordination between the actions and projects carried out by the various levels of government in Wallonia and by ministers with competences directly or indirectly affected by the LTRS.

The measures and actions in this chapter are structured around **four groups of measures**:

- The first aims to provide visibility in the medium to long term, through an effective legal framework.
- The second aims to mobilise stakeholders.
- The third to provide support and facilitate funding for the different audiences in an appropriate way.
- The fourth to provide technical support facilitating decision-making.

Particular attention is paid to better sizing support mechanisms (information, counters, bonuses, etc.) by type of audience and with particular attention to the public in energy poverty, in order to increase its impact on renovation decisions, paying particular attention to those with little means to renovate.

Introduce step-by-step and increasing ambition regulation (measure 3.4.1 of PACE)

³⁰³Figures 2019/2020, SPW Energy database

³⁰⁴line with Action 381 of this chapter, the decarbonised EPB A label can be achieved on average without banning BEPs by 2050.

Currently, both building owners and renovation companies are reluctant to invest (postponement of decision), due to the lack of clarity on a necessary path for building developments. However, the destination (e.g. label A decarbonised on average for residential in 2050) is already known. Every year that passes makes the path towards achieving this objective more difficult. In order to accelerate the renovation rate, and the transformation of the economic sector of renovation (business creation, workforce training), it is necessary to organise a legal framework, which sets the expected trajectory.

The following actions will therefore be undertaken in this context:

381	Put in place, after consulting the industry, staged renovation obligations (banning the lowest labels and obligations in the event of a change of ownership and/or renting), both for residential and tertiary services. Increase energy standards in case of renovation of buildings and increase EPB quality and reliability. Accompany this transition at the same time as funding support mechanisms. The Government will substantially increase the amounts and optimise the rules for granting zero-interest loans and grants for renovation and energy savings in dwellings, paying particular attention to landlords (ensuring that housing costs are not increased) and co-ownership. The following condition is already laid down in the Order granting home/simplified premiums: <i>'renting the dwelling by means of a registered lease, in accordance with the indicative rent schedule laid down pursuant to Article 89</i>	Discounted	SRLT 1

	<i>the Decree of 15 March 2018 on the lease of dwellings, for a minimum period of five years. '</i>		
318	For new buildings, after consulting the sector, increase the energy performance of residential and tertiary buildings, move from the current QZEN label (near zero energy) to 'ZEN' (Zero energy and zero CO2 emissions) in 2027 for public buildings and in 2030 for private buildings	Discounted	DPR
319	Develop an incentive framework for the definition and implementation of building strategies for the stock of public buildings, including the use of renewable energy sources, and strengthen the capacity of municipalities to achieve this.	Planned	SRLT 1, 2,7
320	Develop and make available a building audit tool and an energy cadastre tool, aiming to establish from 2025 an energy register of public and tertiary buildings at regional level (linked to certification) from buildings public), next one methodology ensuring the reliability and consistency of the data collected.	Planned	SRLT 1, 3, 7.1, 15, 18, 30, 31
321	Increasing the coherence of the different regulations with regard to energy efficiency criteria	Planned	SRLT 1

Given that the **current pace of renovations is not sufficient** and the existing incentive frameworks do not have the necessary effects, the European Commission has put into debate a proposal requiring Member States to take strong measures to improve the performance of buildings, with mandatory control points imposed by the European level.³⁰⁵ The surrounding countries, and other regions in Belgium, have followed the direction of renovation obligations. For example, in Flanders, as of 2023 and following a purchase of a single-family home, the new owner will have 5 years to wait for the D label as a minimum. As of 2028, it will be necessary to reach the C label within 5 years of purchase; etc. In the Brussels Capital Region, the idea is to impose a minimum E label from 2033 for all dwellings. In Great Britain, the letting of G labelled goods is already prohibited. In France, from 2024 onwards, the letting of G labelled goods is prohibited, and this extends from 2028 to goods labelled as F; and so on. In the Netherlands, from 2030 it will be forbidden to rent residential property without a D label, as a minimum. As for the tertiary sector (offices), in the Netherlands they must have at least a C label (note that this measure, announced in advance to the sector, had a major positive effect on these renovations and the development of the renovation market).

The breakdown of residential dwellings according to labels is estimated to be as follows (CEHD³⁰⁶): G (28 %), F (14 %), E (16 %), D (16 %); C (15 %), B (10 %), A (1 %). Generally speaking, reaching a D label can often be achieved by a limited number of actions, such as roof insulation and ventilation control. Moreover, it is demonstrated that one-time renovation with Label A is economically more attractive than renovation in

³⁰⁵In particular, the European Commission proposes banning the G labels in 2030 and F labels in 2033 in the residential sector. For its part, the European Parliament voted in plenary on 14/03/2023 to introduce minimum D label energy performance in 2030 for non-residential and 2033 for residential. The final decision still needs to be negotiated with the Council.

³⁰⁶Figures based on the EPB certification database of existing SPW buildings.

successive phases.

In this context, the Walloon Region takes account of the reality of its building stock and owners.

- a. Energy characterisation of buildings: from 2028 onwards, all buildings must have been labelled, whether or not they have been the subject of a transaction.

From 2025 onwards, an incentive will be provided for households who voluntarily undertake the energy characterisation of their homes.

- b. For rental of residential property (houses, apartments):

It is no longer acceptable for people to pay a second rent via their energy bills.

The DPR provides that 'energy standards to be met for goods rented for the first time in the course of the parliamentary term will be determined, in consultation with the industry, those standards will gradually be extended beyond 2025 to goods leased for which there is a change of tenant or owner'.

Therefore, for goods rented out for the first time **by their owner** (estimate: of the order of 3000/an for all labels):

- À partir du 01/01/2025, ils devront au minimum être de label F.
- À partir du 01/10/2028, ils devront au minimum être de label E.
- À partir du 01/10/2031, ils devront au minimum être de label D.
- À partir du 01/10/2034, ils devront au minimum être de label C.

For **goods already rented out**, and in **case of change of tenant** (estimate: of the order of 39.000/an for all labels):

- TO leave of 01/01/2027, the level minimum F will be required.
- TO leave of 01/01/2030, the level minimum E will be required.
- TO leave from 01/01/2033, the level minimum D will be required.
- TO leave from 01/01/2036, the level minimum C will be required.

With regard to social real estate agencies, various measures facilitating the energy renovation of their rented property should be studied, such as: energy audits are free of charge for landlords who put houses under management by an AIS; the possibility for landlords who put dwellings under management from an AIS to be able to combine zero-interest loans and energy savings bonuses in housing with the loan and grant mechanism of the Wallonia Housing Fund; the establishment of a lighter loan and grant mechanism that would be accessible to all landlords who wish to improve the energy performance of housing, while at the same time entrusting it to AIS for a minimum period of 9 years.

- c. Concerning the ownership of individual residential property (houses, apartments):

In the event **of changes in properties** (around 2 % of the fleet each year; estimated: 35.000 real estate transactions per year on the secondary market (CEHD); all labels):

- From 01/07/2026, obligation to reach level D within 5 years of change of ownership.
- From 01/07/2031, obligation to reach level C within 5 years of change of ownership.
- From 01/07/2036, obligation to reach level B within 5 years of the change of ownership.
- From 01/07/2041, obligation to reach level A within 5 years of the change of ownership.

Changes of ownership in the event of inheritance are concerned with the exclusion of situations where the surviving spouse remains in the dwelling

- d. In addition, in order to give a long-term signal and reach destination 2050 while remaining realistic, goods bearing labels G, F, E, D and C 307 will be gradually banned, in accordance with the following indicative timetable, to be adjusted by the Government in order to be brought into line with the relevant European decisions expected in the coming months, and subject to the parallel implementation of accompanying social and economic measures: respectively every 5 years from 01/07/2031, 01/07/2036, 01/7/2041, 01/07/2046, 2050.

The translation into the legal texts of the requirements set out in the various timetables above will take account of any exceptions for technical and economic impossibility. Accompanying measures to finance renovations, for those who cannot meet their obligations, will be developed at the same time. They are mandatory and essential. See in particular actions 325 and 326 below.

Minimum energy performance trajectories will also be defined for co-properties and the tertiary sector, both for rental and for own occupation, with a main focus on office buildings, in terms to be defined, in particular taking into account the specificities and constraints of co-properties.

e. Concerning new buildings

The aim is to define the concepts of 'ZEN' and 'ZEN-ready' (for the residential and tertiary sectors) and to set the timetable for the gradual application of the ZEN requirements, after consulting the sector, and taking into account European taxes³⁰⁸. Since all existing buildings cannot reach the A label, this gradual strengthening of requirements for new buildings is indeed necessary to bring the building stock on average to the A label and decarbonise its energy supply.

Introduction of the concept of 'ZEN' building

Europe defined the concept of NZEB (for Nearly Zero Energy Building), which was transposed into Walloon law under the heading QZEN (for quasi Zero Energie) by AGW in 2016, and entered into force on¹ January 2021. These requirements still allow buildings to consume up to 85 kWh/m².an. This threshold corresponds to the upper limit of label A, which means that today's new buildings are just part of the overall objective of the long-term renovation strategy, which aims to achieve, on average, a label A label for the entire Walloon

³⁰⁷The breakdown by label is an estimate, as currently 700,000 certificates have been issued in total since 2010, part of which has become obsolete (renovation has taken place). By extrapolation of a CEHD report on the energy performance of the residential building stock – 2021, there are around 440.000 dwellings G, 230.000 F, 255.000 E, 255.000 D, 235.000 C, 155.000 B, 16.000 A

³⁰⁸The Commission proposes that all new buildings should be zero-emission from 2030 onwards; on 09/02/23, the committee responsible for the European Parliament voted in favour of 2028

residential building stock. However, a sufficient stock of A + and A + + + buildings will be needed to compensate buildings for the worst performing labels.

The Walloon Region will therefore launch a technical study to define the indicators to be used to define a ZEN building (for Zno en Ergie –consumption indicator, emission indicator, etc.), and propose thresholds for requirements based on simulations, which will be discussed in consultation with representatives of the construction sector, with a view to adoption by the political authorities.

The timetable for implementation will be as follows:

- 2023: technical studies; administrative/Sector/Policy consultations.
- 2027: entry into force of ZEN for new buildings occupied by/belonging to a public authority.
- 2030: entry into force of ZEN for all new buildings.

Moreover, it would be damaging if a building built today and until the entry into force of this ZEN requirement would soon become obsolete because of its energy performance, which is considered sufficient for its construction, but has become insufficient in the light of the 2027 zero emission targets. The concept of a 'ZEN ready' building arose from this finding: a building which, on construction today, meets the QZEN requirements imposed on it today, but which, by means of additional works, or a replacement of a component of one of its systems, could increase its performance and reach the ZEN level.

The criteria to be met in order to be considered ZEN-ready will derive in particular from the definition of the ZEN criteria (see the previous point), and from the scope for possible progress of the building, which will be established by means of the previous technical study. Whether or not to require a building to be ZEN ready will be discussed in the context of the consultation planned for the ZEN.

f. Improving the quality and reliability of the EPB

The current EPB certification has been designed to be inexpensive, resulting in a risk of under-estimating the actual EPB. This risk is low for lower labels (F, G), but increases towards better performing labels (D, C,B).

In the light of the new ambitions associated with it, the functioning of the PEB-certification should be reviewed. This strengthening of certification must take into account the EPB applied in other regions. Measures should also be taken to increase the number of certifying officers available on the market.

g. energy renovation of co-properties

The renovation of co-properties faces particular complexities (decision-making mechanisms between co-owners, more complex technical systems, etc.). Facilitating the necessary energy renovations requires several adaptations, both in the mandatory renovation schedule (possibly different from that of single-family housing), in the EPB (see above) and in the (insufficient) support. A real incentive and regulatory framework (in particular in order not to be hampered by one or a minority of co-owners) specific to co-properties will be developed in order to facilitate and accelerate their renovation.

- h. At the level of public buildings, since January 2021, they have been obliged to display their energy performance certificate (kWh/m²/year). However, the stock of buildings occupied by public authorities remains poorly known and described, including in terms of energy performance. In order

to be able to build efficient energy renovation strategies (renovate the right buildings, in the right order of priority), the Walloon Government will develop an **incentive framework to describe** the park, characterise it also from an energy point of view (cadastre), and develop building strategies (what long-term uses for which building?), so as to have the necessary information to define an energy renovation strategy. This framework will be accompanied by financial support measures for municipalities.

An **audit tool and an energy cadastre tool** will be made available, with the aim of establishing from 2025 an energy register of public and tertiary buildings at regional level.

A minimum energy performance schedule will be established, taking into account European obligations. This, with the help of the energy register indicating their current situation, will allow owners of public buildings, including municipalities, to plan their renovation works accordingly.

Finally, different regulations are developed by different departments of the Administration, depending on the subjects to be dealt with: spatial planning, housing, energy, heritage, etc. The **coherence between these different regulations** will be improved in order to facilitate an increase in the energy performance of renovations.

Mobilising stakeholders

Securing the support of all those involved in building renovation is essential in order to increase the pace of renovations, ensure their quality of design and execution, facilitate coordination of stakeholders and disseminate consistent information to developers.

Furthermore, it is important to demonstrate feasibility by supporting the creation of exemplary buildings, support for innovations, as well as by highlighting the joint benefits in terms of health, comfort and added value of the renovated building.

322	Deploy the Climate – Employee and Renovation Alliance (ACER)	Ongoing	SRLT 11, 20 /PRW 59
323	Support the development and showcase of exemplary and/or pilot initiatives, in particular through calls for projects, in particular through the development of district renovations, the overall renovation of buildings in co-ownership, or other exemplary initiatives of associations, individuals or businesses.	Ongoing	SRLT 7,17,21,29/P RW 60

ACER aims to:

- Bringing together stakeholders around common objectives for energy renovation of buildings and building ownership.
- Provide an overview of energy renovation actions (public and private).
- Ensure coherence, synergies and harmonisation of practices.

- Establish a dialogue between stakeholders, get back on the ground, find solutions.
- Define a roadmap for energy renovation.
- Monitor these actions.

In this context, actions will be taken to:

- Stimulate demand for sustainable energy renovation of public buildings.
- Stimulate demand for sustainable energy renovation of private buildings.
- Increase the supply of sustainable energy renovation in terms of quantity and quality.

Furthermore, it is important to support development and highlight exemplary and/or pilot initiatives. On the one hand, the decision to renovate any building owner will be facilitated if he is convinced that renovation is feasible and desirable. On the other hand, speeding up the annual renovation rate calls for the development of new approaches and methods (technical and organisational innovations), the effectiveness and efficiency of which must be demonstrated in nature.

To meet these 2 needs, calls for projects will be organised to support the implementation of exemplary renovations (desirability and feasibility) and new renovation models (feasibility of innovative approaches).

Provide coaching and facilitate funding for different audiences in an appropriate way (PACE measure 3.4.3)

It is necessary to provide each target audience (households, co-owners, public authorities, precarious public authorities, etc.) with **appropriate and differentiated support** according to needs (information, support, full support). Similarly, new funding products must be available in order to match the needs of each type of public, including precarious ones. In the medium term, the ambition is to further improve and simplify the system, both for applicants and for public authorities. In addition to the financial aspect, it is also a matter of continuing the deployment of Guichets unique to ensure the greatest efficiency and clarity of information. New financing products, grants and subsidies will also encourage the use of infant and/or innovative low-carbon industries to scale up their development.

All of the schemes set out below, which **complement the financing and accompanying measures for renewable energy** described in the previous chapter, are also essential tools for households to get out of fossil heating. A deep renovation of her home makes it possible to significantly increase its energy performance and thus reduce energy needs.

A change in the institutional landscape is necessary in order to be able to achieve the renovation objectives for the next 25 years, with at least the large population layer, which will not be sufficiently profitable to be supported by possible private initiatives. **This development must take account of the lessons learned from existing mechanisms**, in the Walloon Region and abroad. Given that the introduction of a reformed landscape may take time, this must not slow down the various initiatives currently under way or to be taken and which have a short-term effect, which will contribute in one way or another to this new landscape.

324	Continue the development and financing of one-stop shops (information/comprehensive support) projects for households and public buildings, subject to better coverage, better synergy between actors, and greater efficiency of the support service for the various audiences	Ongoing	SRLT 24, 34 PRW 57

325	Support Walloon households to renovate their dwellings, accompanying them in the implementation of renovation obligations, by strengthening financial support schemes proportional to household incomes	Discounted	
326	Set up a pilot programme to support the renovation of dwellings identified as energy passoires for landowners in poor situations.	Planned	PRW 53
251	Formulate and implement a public housing renovation plan to reach the decarbonised A label, and set up specific investment support schemes for social housing, linked to energy performance	Discounted	SRLT: 6, 7 PRW 243, 251
327	Support the use of local bio-based materials and forest-based industries for buildings; develop the BBC concept – Bas Carbone Building; give priority to the significant use of bio-based materials in all public projects or projects subsidised by the Region; support the development of sectors; take carbon storage into account in the assessments.	Ongoing	SRLT 12 PRW 70
328	Continue to support the renovation of public and non-profit buildings while respecting regional competences. Assess the coherence and impact of calls for projects and, where appropriate, renew them, strengthen or consider other mechanisms to ensure that trajectories and objectives are respected; including the evolution towards a system of drawing rights for calls to local authorities.	Ongoing	SRLT 7,15,16
769	Identify any relevant tax incentives to stimulate energy renovation, in line with the work of the Wallon Parliament	New	

Whether they are public owners or households, renovation is usually not their basic occupation. Complexity (defining the work required, identifying and contracting firms, ensuring financing, following the works, obtaining bonuses, etc.) is likely to delay or even prevent renovation. It is therefore necessary to accompany the decision-maker. For the decision-maker, a single information guide allowing him to know (information) how to proceed will suffice. A local renovation platform will be very useful for the decision-maker who wishes to steer his own renovation project while being accompanied. Some owners will be more convinced by an entity that will take full responsibility for its renovation, possibly in a neighbourhood or collective approach. The Region will support the **development of these various** 'One Stop Shops' which currently cover only part of the territory and population. Moreover, the approach is recent and it is likely that the models currently tested will need to evolve. For these reasons, the Region will continue to support the development of renovation platforms and Unique Guichets, with a particular focus on the more vulnerable audiences, and

aiming for better synergy between actors and greater efficiency of the support service. **If necessary**, on the basis of feedback from the support mechanisms in place, based on existing models abroad (more than 60 One Stop Shops in Europe, of different types), on the basis of an ongoing study and exchanges within the Climate Employment Alliance, there will be **a need to redesign and significantly strengthen the landscape of regional support mechanisms**, with priority being given to the most vulnerable households.

Support for Walloon households to renovate their homes is essential to support them in the implementation of the upcoming renovation obligations. The strengthening and diversification of financial support proportional to household incomes is therefore foreseen.

The Region grants 'energy' and 'housing' **premiums** proportional to household incomes, which allow many renovation works to be supported and carried out. Premiums shall be granted, inter alia, for the following investments: thermal insulation of the roof, thermal insulation of walls, thermal insulation of the ground, installation of efficient heating and/or hot water systems, performance of an energy audit³⁰⁹.

In October 2022, the Walloon Government decided **to increase the basic amounts** of these premiums and the maximum ceiling for invoices that can be reimbursed (up to 90 % as against 70 % at present). As of 2023, this reform of housing premiums will be implemented. In the medium and long term, the items eligible for bonuses and the amounts of the premiums will be reviewed, increased or limited, depending on the needs of the energy and solidarity transition. The **formalities for obtaining** premiums must be **facilitated** and the time taken to obtain premiums must also be **shortened**.

For low-income households, the MEBAR operation **already** allows access to a series of works on advantageous terms.³¹⁰ For people in precarious situations, different approaches to support them need to be explored, such as the feasibility of setting up a 'tier-paying' system, and/or prefinancing the works, so that the candidate for renovation does not have to advance the total amount of the works.

SWCS and FLW already grant zero-interest **loans for renovation works** to a large public (Renopack³¹¹), but within the limits of the resources allocated to them by the Government. These means **will** be tenfold, considering that this is the most efficient way of supporting the intentions to renovate which, without having the necessary capital, have sufficient repayment capacity.

The stone financing system is also under consideration. It is characterised by the fact that the loan is attached to ownership and not to the person owning the property. As a result, on a change of ownership (sale), the debt is also transferred to the new owners. This is an affordable and accessible form of financing for all owners, as borrowing takes place over long maturities (20-30 years) reducing the amount of the monthly instalment to be repaid on the one hand. On the other hand, it is accessible to older owners, or who do not have access to traditional bank credit for other reasons. The Region will support the establishment of such systems.

The **final loan** (or transfer loan in France) consists of repaying only interest over the duration of the loan, the capital being repaid in one instalment (on sale of the building, by viager, etc.). It has the advantage of making only small monthly payments, since they are made up of interest only. The Region will support the establishment of such systems.

In addition to the stone loan and the final loan, complementary tools offered by the private sector but in line with public concerns about a general increase in the renovation rate in buildings will be encouraged.

³⁰⁹ See the basic amounts for all the works concerned and the calculation of income corresponding to a multiplying factor (from 1 to 6) of the basic amounts: Habitation bonuses (from 1 June 2019) – Energy site of the Wallonia Public Service

³¹⁰ Energy subsidy for low-income households (Operation Mebar II) – energy site of the Walloon Public Service

³¹¹ Benefit from the Renopack (Wallonie.be)

Encourage **green credits, withdrawals and other ad hoc** initiatives enabling the private sector to contribute to the financing of the massification movement and renovation. Green credits are schematically based on the provision of special conditions to the borrower who improves the dwelling he has just acquired in a path of PEB A. The assumption of outstanding amounts allows borrowers who have already repaid part of their credit, which is still covered by a mortgage security, to borrow all or part of the sums repaid for additional work in their building.

Escos could also be interesting funding mechanisms in some cases. Their deployment will be supported.

Support should also be given in particular to the energy renovation of ‘**energy passoires**’ (buildings at level G or F EPB) whose owner-occupiers do not have access to credit due to an excessively low income. A pilot programme will be implemented, and other support or mechanisms may be put in place to improve the energy performance of F and G label buildings. Furthermore, human and information support will be strengthened or implemented to support precarious households in the transition. If necessary, full support mechanisms (full One Stop Shop, including for administrative aspects) will be put in place.

At the level of **public housing**, support requires the formulation and implementation of a plan for the renovation of public housing to reach the decarbonised A label, and the establishment of specific investment support mechanisms for social housing, linked to energy performance.

Wallonia has a total of around 1.600.000 dwellings. Social or public housing accounts for around 110.000 dwellings. Specifically for social housing, the SWL renovation plan (2020-2024) foresees the renovation (health + energy efficiency) of 25.000 dwellings to reach label B and 55.000 dwellings until 2030. The plan amounts to EUR 1,2 billion for an average investment of EUR 46,700 per dwelling. This is in addition to the Pivert 1 and 2 programmes that started in 2016. The plan plans to achieve on average an EPB A by adding means of renewable energy production. The label will only be validated if renewable production compensates only for the electricity consumption of the project.

Another area of support and acceleration of renovation is **support for the use of local bio-based materials and forest-based industries for the building**. The increase in the price of materials, the problem of resource depletion and the zero carbon targets in 2050 for the building sector highlight the need to develop in particular the bio-based materials sector to help address these different challenges and increase the resilience of the building sector. Wallonia has strong players in the manufacture and use of bio-based materials and has developed specific expertise that only needs to be developed.

The long-term building renovation strategy foresees (measure 12) a series of actions (such as: the award of specific grants and/or grants, support for representatives of the sector to ensure their full participation in the region’s initiatives, encouraging and supporting stakeholders to establish technical and LCA approvals, the inclusion of carbon storage in the assessment tools, the provision of specific training) to support local bio-based materials and forest-based industries, to be implemented under the PACE.

This will make it possible to continue and systematise the use of bio-based materials, as the Region is currently doing in numerous calls for projects for the renovation or construction of subsidised buildings, with a view to making it significant.

In addition, the Region will put in place the **concept of the Bas Carbone Building**, already in application in France, to promote the decarbonisation of the building sector and integrate it with TOTEM and GRO tools (see section 3.4.4).

Finally, Wallonia has already committed itself to investing heavily in the **deep renovation of its building**, and will continue to do so. Several calls for projects have been launched or are planned for the energy renovation of buildings and will also be supported in view of their contribution to the objectives of this plan.

Under the governance mechanism described in Chapter 6, the **coherence (criteria and support rates) and impact of these calls for projects should be increased** in order to **renew, strengthen them or, where appropriate, consider alternative mechanisms** that ensure more efficient compliance with long-term energy renovation trajectories and targets, including the evolution towards a drawing right system (including where appropriate the financing of human resources needed to steer major renovation projects) for calls to local authorities.

Some recent initiatives are listed below:

- *Renovation of public and non-profit buildings* (exceptional UREBA calls for projects): the UREBA programme provides grants for improving the energy performance of buildings to the public sector and non-commercial bodies. Under the Wallonia Recovery Plan (project 55), several calls were launched in 2022 and 2023 and new beneficiaries were added.
- *Energy renovation of neighbourhoods*: a call for projects was launched to stimulate the energy renovation of neighbourhoods, as part of Wallonia's recovery plan (project 60), the city's integrated policy, and also in the context of medium-sized urban clusters. The aim is to develop and test methods and approaches, further urban regeneration and economic revival of disadvantaged neighbourhoods.
- *Energy renovation of buildings owned by local authorities*: a comprehensive energy renovation plan for local government public buildings³¹² has been put in place as part of the PRW (project 49). The call for projects was launched in early February 2022 for a selection at the end of 2022. This call for projects aims to improve the energy performance of administrative and/or technical buildings and/or public services of local public authorities (municipalities, provinces, CPAS) (excluding sports infrastructure, crèches, housing, Chapter XII associations and schools).
- *Energy renovation of sports infrastructure*: a call for projects for energy renovation of sports infrastructure³¹³ was launched in October 2021, as part of the Wallonia Recovery Plan (project 58). The target groups are public authorities (municipalities, provinces, associations of municipalities or provinces, autonomous municipal and provincial authorities), asbl managing buildings or sports grounds, and sports associations formed in asbl.
- *Energy performance in crèches*: Wallonia undertakes to create, by 2026, 3.143 additional places in the crèche. The creation of these places is the subject of a call for projects launched in May 2022. The subsidised infrastructure will have to meet ambitious environmental objectives: they will have to achieve more efficient energy criteria than the currently applicable standards, use ecomaterials for insulation, favour decarbonised energy and be located in accessible areas for public transport. Wallonia's support is provided through the EQUILIBRE 2126 plan.

Adapting property taxation can play an important role in increasing the renovation rate. Different avenues should be explored, in terms of impact on the different sections of the population and on the public budget. As the Walloon Parliament has started work on Walloon taxation, this will be taken into account in this process.

Provide technical support facilitating decision-making (PACE measure 3.4.4)

³¹² <https://infrastructures.wallonie.be/pouvoirs-locaux/nos-thematiques/infrastructures-locales/batiments-et-voiries/appels-a-projets/plan-de-relevance-for-the-Wallonia-appel-a-projets-for-la-renovation-energetique-des-batiments-membres-mothers-locaux.html>
³¹³<https://infrastructures.wallonie.be/pouvoirs-locaux/nos-thematiques/infrastructures-locales/infrasports/plan-de-relevance-pour-la-Wallonia-appel-a-projets-pour-la-renovation-energetique-des-infrastructures-sportives.html>

The massification of building renovation also requires a series of more technical measures and administrative acts to ensure the simplification and coherence of projects. Among them:

329	Incorporate a roadmap into the EPB certificate and continue the promotion and development of the Building Passport (housing)	Planned	SRLT 15,16,22,23
383	Integrate life-cycle GHG emissions of materials into the EPB through the TOTEM tool , based on	New	
	voluntary from 2025 onwards, mandatory already in 2027 for buildings of + 2 000 m ² and in 2030 for all new buildings and renovations.		

The **building passport** is a structured comprehensive folder that gathers the information required to describe the condition of a building and is intended to accompany the building throughout its lifetime. It will be complemented by the inclusion of a roadmap to map the renovation trajectory, step by step (list of renovation works carried out and to be carried out). It will quantify the investments needed and estimated annual gains and highlight co-benefits, particularly in terms of health, comfort and quality of life. **The roadmap** will be promoted and generalised so that building owners have a vision of the works needed to achieve the best possible energy performance of their building. Furthermore, in the draft text for a recast of the EPBD, submitted for consultation with the Member States at the end of 2021, Europe plans to include in the EPB certificate the concept of ‘ *life-cycle global warming potential*’, expressed in kgCO₂per m², from 2027 for buildings > 2.000 m² and from 2030 for all buildings. This concept is directly linked to the existing TOTEM tool. These tools are currently free of use and non-regulatory, unlike the EPB software, which governs the application of the EPB rules in Wallonia (works part).

An obligation to assess the whole life cycle greenhouse gas emissions using the TOTEM tool will be introduced, with an indicator (kg CO₂-eq per m² per year) included in the EPB certificate:

- From 2025, integration possible but still on a voluntary basis.
- As of 2027, for new buildings with a floor area > 2.000 m².
- As of 2030, for all new buildings or similar (residential and tertiary).

For the sake of efficiency, it will be possible to export data from the EPB tool to the TOTEM tool, in order to avoid the user having to re-encode all the common data. A merger of the two programmes is envisaged in the long term. The introduction of an explicit BBC level in TOTEM (Bas Carbone Buildings) is also necessary to achieve the decarbonisation objectives of the entire building sector.

Cooperation between the three regions is already in place to implement and develop these tools, in parallel but also in a differentiated way according to the needs of each region.

Improving the energy performance of heritage assets (PACE measure 3.4.5)

Whether in terms of energy performance or the development of renewable energies, the **specific characteristics of old buildings should be taken into account** when adapting it. The aim is to strike the right

balance between respecting the heritage dimension and other parameters such as energy performance.

Building heritage plays a crucial role, building on our history and identity, and as such it is important to protect it and pass it on to future generations. It should therefore be avoided as far as possible that climate challenges do not lead to irreversible acts on our heritage, without, however, preventing any change. While the property exception should not be the rule, it is important to maintain a special possibility of treatment, and of an exception, for assets, especially since the address base is relatively small.

For example, **the various rules on** improving the energy performance of buildings and energy-producing equipment already provide for an exception for heritage assets:

1. COPAT, which provides for the possibility of a subsidy for improving energy performance consistent with the interests which justified the protection of the monument.
2. The Decree on the energy performance of buildings, which provides that energy performance requirements are not applicable to goods classified or included in the safeguard list, except for electromobility requirements. The obligation to provide an EPB certificate remains the same.
3. The CoDT, which provides for a list of works exempt from planning permission, the competition of an architect or considered to be of limited impact (the purpose of which is, in particular, to simplify procedures for works contributing to the energy improvement of buildings), from which goods classified or included in the backup list are exempt³¹⁴.
4. The circular on planning permission for photovoltaic, which encourages installation on the roof, elevation or mineralised surfaces and excludes in particular protected landscapes (areas of landscape interest, remarkable, cultural, historical and aesthetic interest, classified sites, etc.).³¹⁵

In order to ensure that heritage assets contribute to the climate objectives of this plan, **two types of intervention** can therefore be envisaged:

- The addition of independent equipment: wind turbines, photovoltaic panels, charging stations, HV lines, air conditioning, air extraction, etc.;
- Changes to the property: frames, glazing, insulation, heating, etc.

In both cases, the choice of type of intervention and techniques must be guided by respect for the property's heritage values: in some cases, traditional techniques will be more

³¹⁴For property located in a protection zone or pastilled in the regional inventory, this list applies unless the works involve modification of the building envelope. Finally, the CoDT discusses, in various articles, the issue of the installation of wind turbines or solar panels, but never linked to the issue of building heritage protection under COPAT. It is true that the concept of landscape comes back on many occasions, but outside the legal framework for the subject matter of the Heritage.

³¹⁵The circular explicitly refers to the Florence Landscape Charter, in which Belgium committed itself to putting in place means of intervention aimed at the protection, management and/or planning of landscapes.

suitable, in others technological innovations will offer interesting solutions. Solutions must be adapted to each specific situation, considered on a case-by-case basis.

733	Maintain all the exceptions relating to heritage buildings in the various regulations relating to the improvement of the energy performance of buildings and energy-producing equipment	Ongoing	
734	Promote, where possible, the installation of renewable energy systems. All options can be considered provided that the final decision is motivated by the preservation of the property's assets. Solutions must be adapted to each specific situation, considered on a case-by-case basis.	Discounted	
735	Support the energy improvement of heritage assets by taking into account the specific characteristics of this type of building in the context of calls for projects and other support mechanisms (e.g. exceptional Ureba)	Discounted	
736	Include an obligation to examine the possibilities of works to improve the performance of the classified property in projects for the restoration and rehabilitation of classified goods	New	
737	Improve support for the sector through the integration, where appropriate, of at least one member with expertise in the field of energy in the support committees for rehabilitation projects	New	COPAT

iii. Description of policies and measures to promote energy services in the public sector and measures to remove regulatory and non-regulatory barriers to the introduction of energy performance contracting and other energy efficiency service models (5)

Region Walloon

Wallonia has been supporting the Renowatt **programme** since 2018. Public authorities can use Renowatt, which, as a one-stop-shop, analyses their needs, conducts audits and studies and accompanies them with a view to concluding contracts for services and works for energy renovation, whether through Energy **Performance Contracts (EPC)** or Design and Build (D & B) contracts. The buildings selected to be studied and renovated are grouped together in pools of buildings, with a view to achieving economies of scale and to achieving amounts of investment in order to attract potential bidders. Renowatt's development also needs to increase public awareness of the specificities and benefits of EPCs.

In general, PACE relies on coaching and facilitation of funding for the different types of actors to support the acceleration and massification of building renovation. In this context, Escos (for *Energy Service Companies*) could be interesting financing mechanisms in certain cases. Their deployment will be supported.

The Escos could provide skills, human resources and certain guarantees (energy performance contracts or

even third-party investors) enabling the investments needed to reduce energy consumption for different types of public.

The Escos develop the necessary tools (standard contracts, performance monitoring, technical skills, pooling of buildings) and institutionalise practices to improve efficiency.

The aim is to control and reduce consumers' energy consumption. The energy service company is responsible for ensuring the energy performance of a building and thus ensuring a reduction in energy consumption.

The Escos system makes it possible for the service provider to reduce risks (portfolio of several buildings) and releases the customer from the energy tracks so that he can focus on his core business. This measure also helps to strengthen action as part of the exemplary role of public buildings.

Brussels Capital Region

Pursuant to Article 5 of Directive 2010/31/EU, the Brussels-Capital Region must renovate 3 % of the total floor area of buildings owned and/or occupied by the regional authorities each year to meet at least the minimum energy performance requirements, or achieve equivalent energy savings in the same buildings.

In 2019, all these buildings represent a total useful floor area of approximately 157.660 m². The savings generated are estimated at 595 MWh of final energy.

These savings should be achieved through the combination of PLAGE and RénoClick (renovation works).

- iv. *Other policies, measures and programmes planned to achieve the indicative national energy efficiency contributions for 2030 and the other objectives referred to in section 2.2 (e.g. measures to promote the exemplary role of energy efficient public buildings and public procurement, measures to promote energy audits and energy management systems (6), consumer information and education measures (7) and other energy efficiency promotion measures (8)).*

Region Walloon

A. Improving the energy and climate transition of businesses and industries

Industrial and commercial companies have a crucial role to play, regardless of their size, representing more than a third of CO₂ emissions and energy consumption in Wallonia. Setting a binding absolute target for these sectors could be counterproductive by incentivising relocation and import without reducing the overall impact. The aim is therefore **to reduce the energy and carbon intensity of our economy** to ensure it is resilient and competitive in the long term.

With a coherent set of legislative, incentive and facilitation measures, priority will be given to moving beyond the legislative framework defined by Europe. The targets will be SMEs as well as companies that formally commit (through voluntary agreements) to deep decarbonisation.

The decarbonisation of certain sectors will also require specific technologies and new energy carriers such as **hydrogen** or **carbon capture**, for which development beacons are foreseen in this plan in Chapter 3.1.

The DPR states that the Government will redesign the aid schemes for enterprises. ' The aid granted to companies will be directed towards the creation of sustainable and quality jobs and towards a circular,

decarbonised and innovative economy... An evaluation of the mechanisms for financial support for companies (tangible investment and research projects) will be launched by the Government in order to ensure efficient use of public funds [in relation to these aspects] [...] Furthermore, the Government will adopt a single framework for analysing all credit demand dossiers for, alongside the financial analysis *stricto sensu*'.

This will include special and enhanced support for companies investing in order to reduce their environmental footprint and develop a circular economy approach, and gradually reducing subsidies to sectors and technologies that run counter to climate or environmental objectives.

This recast is structured around three complementary axes:

1. Establishment of a new generation of industry agreements
2. Support for SMEs and large enterprises
3. Revision of legislation and regulations.

- *Axis 1. Establishment of a new generation of industry agreements*

The main measure proposed for businesses is the establishment of a new generation of voluntary agreements. This is a structuring measure based on a decarbonisation roadmap for 2050. The resulting new contracts will constitute long-term voluntary agreements open to all companies without restrictions of size or sector. Many actions are proposed to support the implementation of these new sectoral agreements.

The objective is twofold: drive the energy transition towards carbon neutrality and ensure the long-term competitiveness of companies. The responsibility of the company towards transition values should be at the centre of the process, in the widest possible range of its value chain. It is in this context that there must be a series of incentives to move to action, but also a fair monitoring of the results achieved.

Plan and monitor companies' low-carbon transition by developing a comprehensive roadmap and monitoring the impact of the measures (measure 3.5.1 of the PACE)

The low-carbon transition of companies must inevitably involve a conceptual change in the historical approach. From a business-oriented approach since 2005, it is necessary to move towards an approach where the company interacts with its environment in order to reap the benefits that these interactions may have in terms of energy savings or industrial symbiosis.

330	Establishing the 3th generation Voluntary Agreements ^(AV2030) and ensuring the visibility of these agreements and their impact	Ongoing	PWEC
331	Introduce an obligation to report energy consumption and process on a smart, centralised and cross-cutting electronic platform for the various services of the SPW, ensuring data confidentiality	Discounted	PRW 68
332	Develop a centralised monitoring tool for energy support and their impact	New	—

- *Axis 2. Support for SMEs and businesses in voluntary agreements*

Supporting companies in their low-carbon transition (PACE measure 3.5.2)

Currently, the Branch Agreements offer an advantage and opportunity to companies of a certain size that

have the human resources to build a long-term vision. In small structures (SMEs), the tool is disproportionate and requires SMEs to be supported by means of procedures adapted to their size.

The objective of this measure is to provide the framework and tools to support companies in their low-carbon transition, through the following actions:

333	Establish a framework enabling companies to pool their efforts without creating additional administrative burdens and enabling companies to be more accountable individually	New	—
335	Adapt the permit rules to include the imposition of sectoral benchmarks, quality energy accounting, the EE 1 st principle and a comprehensive discussion on carbon clusters	New	—

In the context of voluntary agreements, the long-term axis should be based on successive objectives and phased action plans, monitored annually and defined on the basis of an audit approach. Whatever the duration of the contract, the objectives will have to be revised periodically (every 4 years, in accordance with the periodicity defined for regulatory audits).

The audit on the basis of which the objectives described above will be developed should cover several levels of ambition. A first level will concern the company's 'usual' improvements and the annual monitoring of data monitoring, and it will be the entry point for participating in the contract.

A second level will be linked to the definition of a 'break' objective through the introduction of additional improvements. These, which are less profitable or have a feasibility to be confirmed, are likely to require support from the authorities in the form of incentives to move to action.

Audits and perimeters should cover the carbon value chain of which the company is part (economic or geographical ecosystem), which implies taking into account aspects that are extensive in relation to ADB2 (including the circular economy, the thermal energy network, renewable energy production, capture and sequestration of CO₂, refrigerants, transport of goods and persons, etc.) This extension of the scope will, however, ensure that only subjects on which the company has sufficient control and steering gear in the carbon value chain.

The same principle of a phased action plan based on a suitable relevant audit will underpin the specific support for SMEs:

336	Establish an energy/carbon audit methodology under the new Branch Agreements (ADB3) on the principle of administrative simplification, including in particular the company's financial and technical capacity to implement it (taking into account size, potential impact, etc.). The audit should lead to an action plan, prioritised on the basis of cost-effectiveness.	Discounted	PwEC and PRW 68
338	Developing professional synergies (clusters around technical solutions)	New	—

Encouraging the transition to action (measure 3.5.3 of PACE)

Taking into account the objectives of deep decarbonisation, the evolution and forecasting of energy prices, as well as the desire to preserve or even strengthen the competitiveness of Walloon companies, consideration has been given to the compensatory measures to be granted under new agreements. The various compensatory measures proposed will be geared towards encouraging companies to take action to reduce their energy costs in a structural and sustainable way, both through aid for study and investment, by granting loans for specific projects or by means of aid for human resources and access to specialised skills.

For SMEs, access to study and investment aid must be facilitated by providing technical and administrative support tailored to their specific needs and proportionate to the impact:

340	Facilitating the establishment of carbon plans by SMEs	Planned	PWEC
341	Strengthen the structures to support the energy transition of businesses set up by economic tools. Support structures will have to develop a common diagnostic methodology, based on experience gained in particular on energy performance contracts or carbon balances. These structures will link with financing tools (ESU, Kyoto Fund, European Funds, etc.).	Discounted	PWEC

Boosting energy efficiency and renewable energy to reduce emissions (PACE measure 3.5.4)

The objectives of future voluntary agreements, as for the second generation of sectoral agreements, will continue to be defined in terms of efficiency (i.e. relative) and not in terms of reduction (in absolute terms), so as to avoid encouraging a decline of our companies or the mere relocation of emissions currently present in Wallonia.

These quantified targets will give priority to the CO₂ aspect (not necessarily limited to the company's production perimeter) but will also integrate the other two axes of energy efficiency (focusing on energy consumption) and renewable energy production/use. The objectives described here will therefore be defined as "within a constant perimeter", they will depend on relevant activity indicators appropriately selected by approved auditors, and their definition will follow a methodology approved by the Walloon authorities.

For SMEs too, complementarity between optimising needs and greening supplies will be the basis for decarbonising our economy, together with networking via circularity.

This is done through a series of actions to:

1. Promoting energy efficiency in companies;
2. Promoting green heat and waste heat in companies;
3. Promoting renewable energy in companies;
4. Develop flexibility measures in companies.

346	Improving the uptake of industrial and tertiary processes by making UDE (sustainable use of energy) aid conditional on studies (pre-feasibility study or feasibility study) complying with the AMURE methodology, carried out by recognised experts from Wallonia, as a precondition for granting ESU aid in order to ensure that the support contracted benefits well for the benefit of	New	

	efficient projects showing real added value, both in energy and environmental terms.		
347	Increasing the attractiveness of carbon audits and plans for tertiary processes (e.g. adapting them to the tertiary sector, making support conditional or increasing deductibility or subsidy)	New	
348	Provide an incentive for companies that have a waste heat source. This sensu lato incentive should take account of the company's status in relation to ETS and ADBs. It may also be integrated into the framework of the Energy Communities. It is argued that this incentive is not necessarily financial, and that it will be in the context of budgetary neutrality.	New	
349	Setting up pilot projects (and, where appropriate, a support mechanism) for the production and use of renewable gases linked to specific industrial needs	Planned	PWEC, PRW 48
351	Develop support for flexibility through management of demand and energy storage in companies	New	

For Action 346, this process would allow for more qualitative projects to be taken into account, would prevent the submission of aid applications for projects whose use is not accepted in our support mechanism (such as private use, etc.), and simplify the administrative handling of cases. These preliminary studies would allow project promoters to have a more objective view of the investments to be made so that they are more appropriate to their needs and are well sized. At present, the only approach that is usually encountered is commercial and comes from the supplier.

- *Axis 3. Revision of legislation and regulations*

Adapting Walloon legislation to anchor in the European *Fit for 55* is the prerequisite for enabling the relevant support of our companies beyond the strict legal requirement.

Strengthen the legislative framework for businesses for their energy consumption and greenhouse gas emissions (PACE measure 3.5.5)

In addition to purely voluntary measures, it is also necessary to comply with European obligations in terms of monitoring and support by the public authorities.

1. 352	2. Improve the quality of impact estimates by strengthening the role of verifiers in the context of the various reports	3. New	4. —

5. 354	6. Revise the AGW Amure to adapt the methodology, strengthen the auditors' skills, extend the scope of the study to the reception of the project (including support implemented), increase support and facilitate procedures	7. New	8. —

In addition, the **Walloon Region's new economic and financial tool** will have an ESG (Environment, Social and Governance) sustainability policy. This will include:

1. The integration of non-financial criteria (ESG), alongside financial analysis *stricto sensu*, into a common analysis grid.
2. A DNSH screening (Do not significantly harm) of investments analysed by the tool and from a certain amount, together with a view to the minimum safeguards set out in the Taxonomy Regulation (compliance with the UN and OECD conventions). A gradual reduction in investments contrary to the DNSH principle, to the European taxonomy.
3. The integration of ESG considerations into the support measures implemented by the tool, with the aim of proposing business improvement routes.
4. Training of employees on these issues.
5. Regular and transparent *reporting* on the implementation of ESG policy.

Societal criteria will be environmental, social and governance ("ESG"), for example:

- Environment: promotion of energy efficiency, reduction of greenhouse gases, sustainable use of natural resources, transition to a circular economy, respect for biodiversity, energy source (renewable or not) used, waste management, supply management (local, secondary raw materials, etc.), environmental risks (air/water/soil pollution, noise pollution, etc.).
- Social: ethics, respect for human and labour rights, sustainable job creation.
- Governance: separation of management and control functions, presence of independent directors, respect for minority shareholders' rights, promotion of diversity and parity, and tax transparency.

Like the financial criteria, the measurement of these non-financial criteria and their taking into account may vary according to specific factors relating in particular to the undertaking's activity, its profile, the intervention, etc. To this end, the ESG criteria will be broken down by sector and by BU and specific indicators will be identified in order to make them operational.

On this basis, the tools are responsible for drawing up a draft common analysis grid framework, in particular on the basis of the work carried out by the consultant in connection with the European call for projects. This analysis grid will be scaled up and broken down according to the specific characteristics of the UBs.

654	Endow the Walloon Region's future economic and financial tool with an ESG policy (Environment, Social, Governance). This will include: - the integration of non-financial criteria (ESG), alongside financial analysis <i>stricto sensu</i>, in a common analysis grid; - A DNSH screening of the investments subject to analysis by the tool and based on a certain amount to be defined and a perspective on the minimum safeguards set out in the Taxonomy Regulation (compliance with UN Conventions and from OECD). One decrease progressive from investments contrary to DNSH, the European taxonomy; - integrating ESG considerations into actions support provided by the tool, with the aim of offering business improvement routes; - training of employees on these issues; reporting regular and transparent on the implementation of ESG policy.	New	

Lastly, the amendment of the guidelines in terms of State aid at European level (*Carbon Leakage, Carbon Border Adjustment Mechanism*, etc.) requires a review of the existing mechanisms to ensure the incentive effect that aid granted must have in terms of both climate and energy gains and competitiveness for the Walloon economy.

B. Exemplary role of public buildings

In order to achieve its objectives 2030 and 2050, Wallonia will extend and strengthen the exemplary nature of its public buildings. An energy neutrality objective will be imposed on all public buildings, with a timetable for completion depending on the level of power concerned. The aim of this timetable is to ensure carbon neutrality by 2050 at the latest.

Energy neutrality is defined as the compression of needs (heating, ECS, cooling and lighting) at the level of a new equivalent building³¹⁶, the maintenance of other electricity consumption at the current level, and the coverage of these needs by renewable production, whether self-produced or purchased.

The tools proposed to achieve this objective are set out in particular in Chapter 3.4 of the PACE.

³¹⁶according to the Costoptium2 study

C. Other measures for the tertiary sector

Public service obligation relating to communal lighting

Obligations on electricity DSOs to maintain and improve the energy efficiency of streetlights are introduced under the Electricity Decree and the AGW of 6 November 2008. Under those provisions, the DSO, at the request of the municipalities, is to maintain, including the improvement of the energy efficiency of municipal street lighting installations in the geographical area for which it has been designated.

DSOs must focus primarily on replacing luminaires over 10 years of age, and also take into account in their plan the need to replace street lighting technologies that will no longer be marketed in short and medium maturities, in particular as a result of the application of the European Technical Regulation “ECODESIGN”. The replacement programme must allow the fleet to be modernised in 10 years, with the replacement coming to an end by 01/01/2030 at the latest. In the long term, all street lighting installations will be equipped with the most suitable LED technologies.

Support and support for private service companies, in particular to improve the energy performance of processes

In addition to the UREBA programme referred to in point 3.2.2 above and specifically targeting the public and non-market sector, Wallonia will continue to support and support private service companies:

- Network of facilitators responsible for information and support for project promoters in the tertiary sector and SMEs.
- Programme Amure et Chèques Entreprises (AMUREBA for the future) for subsidies for the audit of SMEs.
- UDE grants for process energy improvements, cogeneration and renewable production.
- Novallia Funding for SMEs and TSEs who are actively involved in the energy transition.

Large private companies in the tertiary sector, like their counterparts in industry, are subject to the energy audit obligation “Article 8”.

- v. *Where applicable, description of policies and measures to promote the role of local renewable energy communities in the implementation of the policies and measures referred to in points i, ii, iii and iv.*

Region Walloon

An important priority for the deployment of renewable energy is to facilitate ownership by citizens by enabling them to benefit directly from it, invest, produce and manage their own production individually or collectively; and to promote local energy production and sharing mechanisms – within a building, neighbourhood, cluster with companies and industries, etc.

Promoting the development of individual self-consumption of electricity from renewable sources

Establishment of the legal framework around individual self-consumption of electricity from renewable sources (decree-tal and tariff)

In order to promote individual self-consumption of electricity produced from renewable energy sources, the

Walloon Region has adapted its legal framework in various respects:

- The Decree of 19 January 2017 on the tariff methodology applicable to gas and electricity distribution system operators, hereinafter referred to as the 'Tariff Decree', was revised in order, inter alia, to include as a priority objective in the next tariff methodology the energy transition at the best cost for customers, both at network and electricity market level.

The regulator is also responsible for specifically assessing, as part of its annual report on the functioning of the market, the development of individual self-consumption and new forms of energy sharing and making any recommendations in this regard, in particular in terms of measures to promote this activity and remove unjustified barriers. The aim is, in particular, to allow for a rapid adjustment of the regulatory framework in order to promote both individual self-consumption and new forms of energy sharing, taking into account, inter alia, feedback and the reality on the ground.

Provision of support for individual self-consumption of electricity produced from renewable sources (communication meter premium and premium for measuring and piloting equipment)

Individual self-consumption of renewable electricity is also fostered by the introduction of two new premiums for household customers, the aim of which is to contribute to achieving a full rollout of communicative meters by 2030:

- Smart meter placement premium: the Decree of¹ October 2020 inserted a paragraph 2 in Article 34 of the Electricity Decree granting, until 31 December 2023, a premium covering the cost of installing a 'dual flow' meter (including the communicating meters) to the household customer who so requests to its distribution system operator.

The planned budgets concern the granting of premiums for the installation of 37 500 meters at autoproducer household customers and 75 000 meters for other household customers.

- Premium for the acquisition of measuring and steering instruments: the Decree of 17 December 2020 introduced a single premium corresponding to 40 % of the cost of purchasing equipment to measure the electricity flows of a customer 's domestic installation, as well as equipment which allows existing equipment to be operated in order to increase self-consumption in near real time, to shift electricity loads to periods of abundant electricity or to reduce the customer' s energy consumption. This premium is capped at EUR 400 per household customer and is granted by the Administration. The planned budgets concern the granting of premiums for 27 650 installations in autoproducer household customers and 50 000 installations for other household customers.

Promote the development of energy sharing within a building

Establishment of the legal framework for energy sharing within the same building (Electricity Decree and Tariff Decree)

The Electricity Decree was adapted for the implementation and development of renewable energy sharing projects within the same building in accordance with Article 21 of Directive 2018/2001.

The guiding principles of this new regime are as follows:

- The electricity that is the subject of energy sharing must be produced from renewable sources.
- The generating facility whose energy is shared must be located in or on the same building in which the active customers acting collectively are located.
- An agreement shall be drawn up between the active customers concerned settling their rights and obligations and the sharing key for the distribution of electricity.
- The customers concerned are equipped with a meter that measures the energy collected and injected separately and which transmits aggregated data per imbalance settlement period in the form of electronic communication (such as communicating meters) and must waive the annual compensation scheme between injections and electricity levies.
- The building shall be connected to the public network and an agreement shall be concluded with the relevant Network Manager.
- Prior notification to the relevant system operator shall be required before the start of the activity.

The regulator is responsible for specifically assessing, as part of its annual report on the functioning of the market, the development of individual self-consumption and new forms of energy sharing and making any recommendations in this regard, 567

this includes measures to promote this activity and remove unjustified barriers. The aim is to allow for a rapid adjustment of the regulatory framework in order to promote both individual self-consumption and new forms of energy sharing, taking into account, inter alia, feedback and the reality on the ground.

In parallel with the establishment of the framework, the Tariff Decree has also been revised to include new guiding principles, including the energy transition, which will support this new form of energy sharing.

The CWaPE will have to take these new guiding principles into account when establishing the future pricing methodology. This methodology will seek to encourage self-consumption in a “local” manner and simultaneously, depending on the abundance of electricity on the grids.

Establishment of an enabling framework for energy sharing within a building

In addition to the legal framework, an enabling framework is developed to facilitate the emergence of energy sharing activities within a building.

Firstly, it involves developing a number of information tools (specific manual, guide to good practice, FAQs, drafting of standard clauses/agreements, website, etc.) and helping to create this new form of energy sharing.

Feedback from the pilot projects currently under way will facilitate the development of these tools and refine them to the needs of the field.

Provision of support for energy sharing within a building

In order to promote the sharing activity between customers acting collectively within the same building, the Electricity Decree has been adapted in order to establish a specific support mechanism, the details of which have not yet been agreed.

In addition to this specific support, renewable electricity generation installations, whether or not assigned to an energy sharing operation, remain eligible for the green certificate scheme in accordance with the applicable legal conditions.

Creating favourable conditions for the development of renewable energy communities (RECs) and citizen energy communities (CEC) producing renewable energy

Revision of the legal framework for RECs and ECOC

The Walloon Region acted as a precursor in September 2018 by initiating a reflection on the framing of new forms of energy sharing. The reform culminated in May 2022 with the revision of the Electricity Decree, establishing the legal framework for, inter alia, energy sharing within a building and through energy communities (CER and CEC), as well as peer-to-peer exchange. The operational arrangements were laid down in a draft Decree of the Walloon Government on energy communities and energy sharing on 17.

March

2023.

The regulator is also responsible for specifically assessing, as part of its annual report on the functioning of the market, the development of new forms of energy sharing and making any recommendations in this regard, in particular in terms of measures to promote this activity and remove unjustified barriers. The aim is to allow for a rapid adjustment of the regulatory framework in order to promote both individual self-

consumption and new forms of energy sharing, taking into account, inter alia, feedback and the reality on the ground.

Revision of the Tariff Framework to support the development of RECs and ECCs

The Tariff Decree has been revised to include new guiding principles, which will promote energy sharing in CER and CEC.

The CWaPE will have to take these new guiding principles into account when establishing the future pricing methodology. This methodology will seek to encourage self-consumption in a “local” manner and simultaneously, depending on the abundance of electricity on the grids. Establishment of an enabling framework for RECs and ECOC

270	Establish an enabling framework for energy communities (CER and CEC) using renewable energy, for energy sharing within a building, and for peer-to-peer trading. In setting up this framework, account will be taken of: one analysis from barriers who are opposed to development of RECs and ECOC. A focus will be given to different target groups and their specific needs (such as SMEs, vulnerable people or local authorities); an analysis of the impact of the ERC and ECOC deployment on the different market players;	New	—
759	Provide for interoperability of data exchange in the context of energy sharing, in collaboration with network operators, as well as a common data platform for all operators	New	
760	Extend the scope of activities of Autonomous Communities Regies (CAR) to a number of activities relating to energy production, in particular through energy communities	New	

In addition to the legal framework, an enabling framework is developed to facilitate the emergence of energy communities and energy sharing activities among their participants, as well as peer-to-peer exchange.

The aim is to develop a number of information tools (specific manual, guide to good practice, FAQs, drafting of standard clauses/conventions, website, etc.) and help with the creation of these new players and this new form of energy sharing.

Feedback from the pilot projects currently under way will facilitate the development of these tools and refine them to the needs of the field.

Establishment of support for RECs and ECCs producing renewable energy

271	Assess the relevance of establishing support, whether permanent or temporary, for CER and CEC using renewable energy, for energy sharing within a building, and peer-to-peer exchange.	New	—

In order to facilitate the creation of energy communities and foster sharing activity between their participants, the Electricity Decree has been adapted to allow for the establishment of a dedicated support mechanism.

This support could encourage the sharing of electricity produced from renewable energy sources between community participants located close to generating facilities.

The sharing of energy from locally produced renewable sources will in particular limit the strengthening of sections of the distribution network. It will also make it possible to overcome the difficulties of integrating intermittent energy into the network by means of local and reasoned 'collective self-consumption', which can be accompanied by storage facilities adapted to special and collective needs.

The practical arrangements still need to be agreed.

In addition to this specific support, renewable electricity generation installations, whether or not assigned to an energy sharing operation, remain eligible for the green certificate scheme in accordance with the applicable legal conditions.

Implementation and monitoring of ERC pilot projects

274	Implement and monitor innovative energy community projects, energy sharing within a building, and for peer-to-peer exchange	Planned	PWEC/S3/PRW 76

Several research projects related to energy communities are already being funded in Wallonia:

- The Regional Renewable Energy Cells (R2EC) Convention seeks to identify the potential for the exchange of electricity between different prosumers. Research aims to provide a guide with examples in order to be able to locate energy communities promoting self-consumption. The main aims are to create a community location model and simulate it, to create the hardware and software tools needed for the system, and to apply it in practice in one place. They also want to find a workable business model. It is an ERANET European research with partners from Austria, Norway and Wallonia (Becquerel Institute and Greenwatch). The agreement ended on 15/12/2022; the Walloon budget is EUR 371.204, of which EUR 200.194 is public funding.
- The H2CoopStorage Convention aims to develop IT management methodologies and tools to be able to deploy multi-system energy communities (electricity, heat and hydrogen) with energy storage in the form of hydrogen, using a reversible battery. These tools will be deployed at three sites (two limited to simulation, the third with real location in Mortsels, Flanders). It is an ERANET European research with partners from Flanders, Iceland, Norway and Wallonia. French-speaking partners are academic (ULB), companies (CLEF SCRL, Fabricom, Greenwatch) and research (Cenaero). The duration of the agreement is 2 years (14/09/2020 to 30/09/2022); the Walloon and Brussels budget is EUR 470.000, of which EUR 299.500 is public funding. An extension request has been submitted.
- The research agreement (Macro and microeconomic analysis for the Optimisation and replicability

of the Energy Communities) aims to study the societal gain from the development of new energy modes, and to propose consistent pricing/protocol/security schemes and models for all actors, and above all, understandable to citizens and end-users. The aim is to provide models and tools to replicate energy communities in the configurations identified as most relevant to the community. The partners are academic (HEC Liège), companies (Resa, Ores, Noshag immo), Liège City, Associative Association (Cluster Tweed) and Research (Multitel and Laborelec). The duration of the agreement is 4 years (1/1/2021 to 31/12/2024); the budget of EUR 1.331.077, of which EUR 995.156 is public funding.

- The SOCCER (Socio-Economics of the Renewable Energy Communities) research agreement builds on several living labs (to be established) to develop a guide to good citizen practice and identify key success factors for stakeholders (public authorities, citizens, businesses, voluntary and non-profit sectors) to develop RECs and inclusive shared mobility. The partners will develop this guide, integrating sociological, technical and economic aspects. The partners are academic (UMons, UCL), companies (Eliosys et ores), associations (Cluster Tweed and APERe), with research (CRM) and the public housing sector (SLP). The duration of the agreement is 3 years (1/1/21 to 31/12/23); the budget of EUR 1.264.767, of which EUR 988.447 is public funding.
- There are other research into energy communities funded by SPW EER.

In addition, the Recovery Plan for Wallonia provides for the removal of obstacles to the implementation of the Energy Communities (EC), in particular by launching a call for projects for the establishment of the EC. This call for projects concerns a wide variety of EC configurations and should make it possible to quickly identify the way for all those interested in launching such a project, thus speeding up the deployment and integration of renewable energy in the Walloon Region.

VI. Description of measures to develop measures to exploit the energy efficiency potential of gas and electricity infrastructure (9)

Federal State

In the area of electricity, the right trade-off between energy efficiency and the cost of infrastructure is still envisaged at transmission level. In recent years, many transmission line drivers have been replaced by HTLS (High Temperature Low Sag) drivers. In this case, existing masts can be retained and only the driver needs to be replaced to double the capacity. This implies that the use of these conductors may lead to greater loss of resistance. As losses are limited to 1-1.5 % in transmission, a small increase seems acceptable.

The electricity transmission system operator Elia also states that it is gradually making its various stations more energy efficient.

Region Walloon

In the context of Article 15 (2) of Directive 2012/27/EU, the various RDGs have carried out an assessment of the energy efficiency potential of their gas and electricity infrastructure. All the measures assessed by the DSO are included in the report which has been sent to the Commission.

Furthermore, the decrees on the organisation of the gas and electricity market in the Walloon Region require network operators to take energy efficiency into account when planning their investments.

The latter are required to consider energy efficiency measures, as specified in Article 11 (2) of the Electricity Decree:

‘The system operator shall be responsible for ensuring the operation, maintenance and development of the system for which it has been designated under socially, technically and economically reasonable conditions, including interconnections with other electricity systems, with a view to ensuring security^{and} continuity^{of} supply with due regard to the environment and^{energy} efficiency. The Government clarifies the concept of socially, technically and economically reasonable conditions.

To this end, the Network Manager shall be responsible in particular for the following tasks: .../...

10° examine, when planning the development of the network or during congestion management, ^{energy} efficiency, storage, flexibility and reception services for generation facilities in order to avoid the increase or replacement of network capacity or the use of the limitations on injection provided for in Articles 25i (4) and (3) and 26 (2a) to (2f); ’

A similar provision is laid down in Article 12 (2) of the Decree on the organisation of the regional gas market: *‘The system operator shall be responsible for ensuring the operation, maintenance and development of the system for which it has been designated under socially, technically and economically reasonable conditions, including interconnections with other gas systems, with a view to ensuring security and continuity of supply with due regard to the environment and energy efficiency.’*

These measures are submitted to the regulator through the adaptation plans, as defined in Article 15 (1) of the Electricity Decree:

“In consultation with CWaPE, and after consulting the network users and other relevant system operators, the results of which shall be published on the network operator’s website, the system operators shall each draw up a network adaptation plan, the management of which they shall respectively be responsible, with a view to ensuring the continuity^{of} supply, security and development of that network under socially, technically and economically reasonable conditions. The Government clarifies the concept of socially, technically and economically reasonable conditions.

../..

When drawing up their adaptation plan, network operators shall, in particular, consider measures for smart grid management, flexibility, storage energy efficiency, integration of decentralised generation and flexible access to avoid capacity building of^{the} network”.

The distribution network adaptation plan shall cover a period of five years. The local transmission network adaptation plan shall be drawn up in parallel with the development plan envisaged in Article 13 (1) (2) of the Electricity Law.

The technical regulations specify the schedule and the arrangements for drawing up and updating the adaptation plan.

A similar provision is made for gas.

Finally, among its various tasks defined in Article 43^(1a) of the Electricity Decree, the CWaPE must:

“ 2° to contribute to ensuring, in the most cost-effective manner, the development of secure, reliable, efficient and consumer-oriented non-discriminatory systems, and to promote system adequacy and, in line with general energy policy objectives, energy efficiency and the integration of large and small scale electricity generation from renewable sources and distributed generation, both into the local

transmission system and distribution system, and to facilitate their operation in relation to other gas or heat energy networks’ and in its general monitoring and control task, it ensures ‘ § 2 (19) the monitoring and evaluation of the performance of the local transmission system operator and distribution system operators in developing a smart grid that promotes energy efficiency and the integration of energy from renewable sources, on the

basis for a limited set of indicators, and the publication of a report every two years, including recommendations”.

vii. Regional cooperation in this area, where applicable

viii. Financing measures, including Union support and the use of Union funds, in this area at national level.

The funds concerned are: see 5.3 for more details.

Region Walloon

A large part of the measures are either already in implementation or foreseen in other Walloon plans and policies. For new actions, which run over several legislatures, the budgetary impact will be confirmed when they are operational. In all cases where possible, **diversification of funding methods and sources** will be sought.

Each year the Walloon Government adopts its budget and carries out part of the measures and measures in this plan through it. Amounts varying from year to year according to budgetary constraints and general political trade-offs and are therefore not specified below.

In addition, the Walloon Government has adopted the **Walloon Recovery Plan (PRW)**, which devotes substantial budgets through a series of projects in all regional competences for the period 2022-2026. The PRW is particularly mobilised under this plan. Indications of overall amounts are given, bearing in mind that the precise calibration of projects leads to variations in the specific budgets.

Buildings

Given that the renovation of buildings is an important part of the measures taken to ensure energy efficiency, a Walloon strategy for the long-term renovation of buildings has been drawn up. This strategy, noted by the Walloon Government on 12 November 2020, plans to achieve a highly energy-efficient and decarbonised building stock by 2050.

The mobilisation of resources under the renovation strategy includes taking into account both regional and federal public funds from the European Union, but also private and innovative funds, as summarised in the figure below. Given that residential buildings constitute the major part of the buildings to be renovated, the strategy for financing renovation requires a combination of public and private funds, with easier access to mortgage loans for households in order not to leave the budget for these private renovations to bear on public funds.

The renovation funding strategy therefore envisages encouraging and facilitating households’ access to both public and private financing instruments.

1. Private instruments

- Loans at preferential rates
Loan modalities for deep renovation
Appropriations for the building
- Cooperatives:

2. Public instruments

- The regional guarantees making it possible to increase accessibility financing
- The fiscal instruments
- The premiums

As illustrated in the figure below, the instruments can be mobilised cited above originate from

both public and private sources. The Walloon Region finances private instruments from its budget and EU funds, but encourages households and businesses to carry out renovations on equity or on subsidised loans by means of tax credits or other incentives.

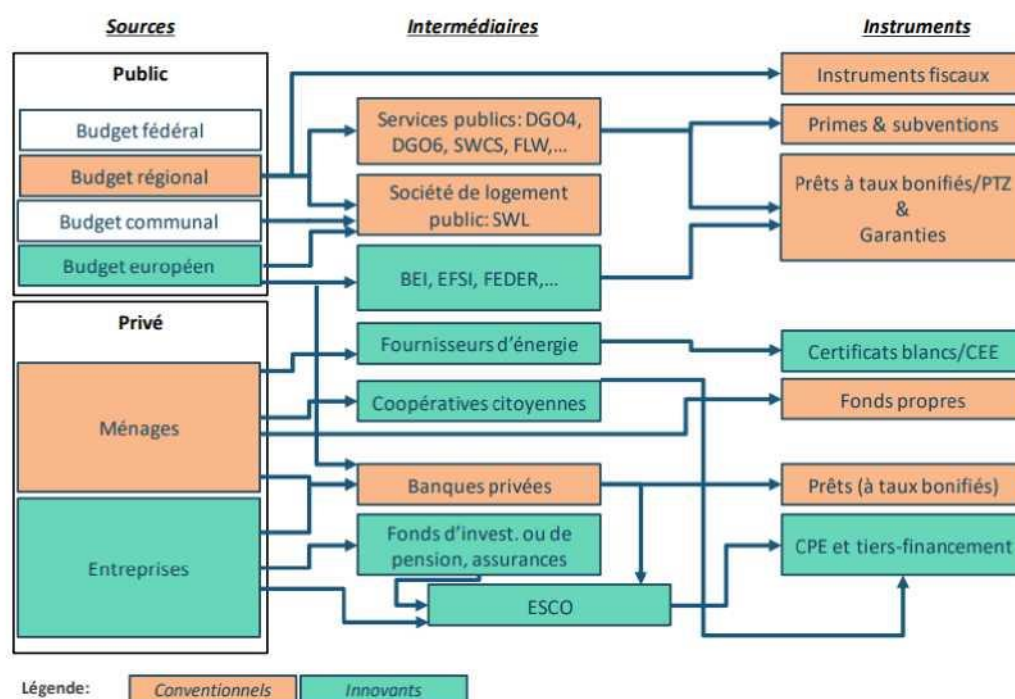


Figure 3: overview of sources, intermediaries and financing instruments for energy renovation of buildings (see p. 162, comprehensive report of the long-term energy renovation strategy for buildings)

The renovation of buildings, both residential and tertiary, requires the mobilisation of substantial public funding from the Walloon budget, in particular through the Recovery Plan projects aimed, for example, at:

- PRW 49: Launch a call for projects for local authorities to encourage them to improve the energy

renovation of public buildings owned by them.

- PRW50: Simplified roof insulation premium and lower renovation works at EUR 6.000.
- PRW52: Increase incentives for renovation, heat bonuses.
- PRW 53 Set up a programme to support the renovation of “ passoires’ energy.
- PRW 54: Reform and strengthen the MEBAR support system.
- PRW 55: Reform UREBA, and launch of several exceptional UREBA.
- PRW 56b: Set up the programme to strengthen the renovation of buildings of the SPW and SPW MI.
- PRW 57: Extend RENOWATT’s tasks.
- PRW 58: Launch a call for projects for energy renovation of sports infrastructure and buildings of interest – PRW 59: Deploy the Climate Employment Alliance Renovation.
- PRW60: Stimulate district energy renovation, as part of the city policy, and also in medium-sized urban clusters, with a view to developing and testing methods and approaches.
- PRW 62: Facilitate the financing of energy renovations of buildings by the machinery of investment funds.
- PRW 63: Launch calls for projects to promote and promote the energy renovation of ‘Copy Buildings’, with a view to demonstrating that it is possible to achieve very good energy and environmental performance within a reasonable budget.
- PRW 70: Establish a support mechanism for local bio-based materials.
- PRW 251: Energy renovation of 25.000 public utility dwellings.

Previous projects represent public investment of the order of EUR 1,8 billion over the period 2022-2026.

EU funding is also complementary to the Walloon budget, including:

- Life BE REEL project! (Quicksan tools, roadmap, etc.).
- ERDF funds: energy renovation measure for regional and local public buildings.
- TSI (Technical Support Instrument): Study on the establishment of a one-stop-shop in Wallonia.

In addition, other avenues of financing could be explored (e.g. CINEA programme)

Enterprises

The main source of financing for the decarbonisation of companies through branch agreements is a reduction on their energy bills. In 2020, these industries covered more than 90 % of industrial consumption and emissions, and saved 5.5 TWh of final energy and avoided more than 2 Mt of CO2 emissions. The drawback amounts amounted to approximately EUR 140 million. This amount is expected to increase over time, as the next generation of voluntary agreements will be open to the participation of more companies.

The European funding linked to the Recovery and Resilience Plan also supports the Walloon budget to support specific projects to decarbonise our companies.

The Kyoto Fund is also an interesting source of current and future funding to support decarbonised investments, among others by companies, through various calls for projects or specific accompanying missions.

The third party institutional investor Wallonie Enterprise is also responsible for various tasks delegated to finance, through the granting of subordinated loans, the decarbonisation of various company profiles (SMEs, large enterprises, the health sector, roll-over companies, etc.).

Lastly, the Walloon budget, sometimes accompanied by EU funding such as the NRRPs funds mentioned above, but also ERDF, INTERREG and HORIZON EUROPE, makes it possible to award specific grants for the transition to action, as well as advice and coaching (auditing and facilitators), research and development of decarbonised technologies or the acquisition of skills relevant to the low-carbon transition.

3.3. Energy security dimension

Note on the division of competences: see explanation under 2.3.

1. Policies and measures related to the elements listed in section 2.3 (11)

Despite the focus on energy efficiency and the ever-increasing share of renewable energy sources, Belgium remains heavily dependent on imports of primary energy sources to meet domestic demand. Russia's invasion of Ukraine has once again underlined the need to strive for and diversify supply in terms of energy sources, origin and route, but without setting quantified targets in this regard.

In addition to a policy aimed at ensuring security of supply in the short and medium term in a changed context, the federal government has also committed to reducing dependence on fossil fuels by accelerating the energy transition. In doing so, security of supply, affordability and sustainability go hand in hand. The measures identified, many of which exceed the duration of the current parliamentary term, are discussed in more detail in the relevant chapters.

These actions are complemented by further monitoring of various parameters (e.g. gas flows, filling level of Loenhout gas storage, evolution of energy prices, the status of DSR targets, etc. A large number of these data have been made public in order to inform market participants in a transparent manner³¹⁷.

In addition, further steps have been taken in the field of energy diplomacy at political and administrative level, including through participation in various relevant fora at European and global level (Extraordinary Energy Councils, Gas Coordination Group, Task Force on Gas and Clean Fuels Market Monitoring and Supply Security (TFG), North West Europe Regional Group – Energy Platform) and deepening consultations with partner countries (e.g. Norway and the UK).

Natural gas

The sharp drop in Russian gas supplies to Europe, which started already in mid-2021 and has intensified since the invasion of Ukraine, has led to a tense situation of natural gas supply in Europe. Since then, the Russian gas shortage in Europe has been compensated by the import of flexible volumes of liquefied natural gas (LNG) as well as by the expansion of alternative sources of gas supply via pipelines from Norway and other non-European producers.

As a result, the gas flow structure in Belgium has also radically changed. Zeebrugge has thus become a central access point for supplies from LNG, Norway and the United Kingdom to supply the Belgian market and neighbouring markets.

In order to secure the gas supply to Belgium and Europe in the future, the necessary infrastructure adaptations are also envisaged. As a first step, the objective is to increase the regasification capacity of the Zeebrugge LNG terminal (+ 8.2 GWh per hour by 2024 and + 10.5 GWh per hour by 2026). This will allow more natural gas to be imported and transported.

In addition, the TSO, Fluxys Belgium, is also planning to strengthen its pipeline network on the Opwijk-Desteldonk road on the east-west axis. Part of this axis is already equipped with double backbone, but

³¹⁷Among other things, monitoring of the European objectives | SPF Economy (fgov.be)

not on this section of the pipeline. By providing for double backbone here, it is first ensured that the additional (gas-fired) power plants can be supplied, but also that a bottleneck will be removed so that as much gas as possible can be transported from Zeebrugge (Zeepipe, Interconnector, LNG terminal) to the interconnection points in the east.

On the basis of Regulation EU 2022/1369, for the period from August 2022 to 31 March 2023, Belgium, like the other EU Member States, was instructed to voluntarily reduce its natural gas consumption by 15 % compared to a reference period. The aim is to respond to a more limited supply of Russian natural gas on the European market. By collectively reducing natural gas consumption, the EU should succeed in becoming less dependent on Russian gas.

Given the reductions provided for in Regulation 2022/1369, Belgium has just missed the EU target of 15 % voluntary savings (14.5 %) ³¹⁸ due to an increase in exports of (produced) electricity in Belgium (via gas-fired power plants) to France. France had to cope with historically limited available nuclear capacity ('early warning') during the summer months/autumn of 2022, following which Belgium exported more electricity to France (electricity market coupling). This significant increase in the use of gas for energy production, which was necessary to export significantly more electricity to France, was not taken into account in the budget of the last gas year 2022/2023 of Belgium's demand reduction for gas, i.e. no temporary limitation of demand reduction has been granted by the European Commission.

At the end of March 2023, Regulation (EU) 2022/1369 was extended and amended (Regulation EU 2023/706) to further pursue voluntary gas demand reduction measures, not only for the winter period, but also for the whole period April 2023 – March 2024.

In addition, Belgium is also mandated by EU Regulation 2022/1032 to ensure a filling trajectory for the storage of natural gas on its territory, for Belgium the Loenhout underground storage facility. The use of the storage facility in line with the filling trajectory will again reduce dependence on Russian natural gas. To this end, market-based measures (e.g. reservation capacity auction) are initially envisaged, but in extreme circumstances, the government

³¹⁸ monitoring of the European objectives relating to the consumption and storage of natural gas | SPF Economie (fgov.be) Follow-up to the European objectives concerning the consumption and storage of natural gas | SPF Economie (fgov.be) federal wishes to be able to intervene by purchasing natural gas itself in order to fill storage. A conclusive solution for the latter emergency solution is under consideration.

Council Regulation (EU) 2022/2576 of 19 December 2022 to promote solidarity through better coordination of gas purchases, reliable price benchmarks and cross-border exchange of gas introduced the mechanism for joint purchasing of natural gas at European level. From now on, all natural gas companies and industrial actors wishing to participate as a buyer or seller in the joint purchasing can register on the AggregateEU platform, the dedicated online service of the Energy Platform. Prisma has been selected by the European Commission as a service provider for Europe and will coordinate the Energy Platform. Joint purchasing of gas is an important European initiative to ensure a high level of security of energy supply for the EU and its neighbours. This will help us bring gas to Europe at more sustainable prices, fill gas storages for the coming winter and diversify our sources of supply faster as we complete the elimination of Russian gas. The first grouping of demand will be finalised in April and a first tender for "reliable" international gas suppliers (Russia is of course excluded) will follow in May. It is important to stress that neither the European Commission nor the service provider will purchase gas. Natural gas undertakings and gas consuming companies will themselves negotiate and conclude contracts directly with natural gas producers.

Following Russia's invasion of Ukraine and the resulting tensions in the natural gas market, the federal government considered it necessary to strengthen its procedures in the event of a shortage of natural gas. To that end, the emergency plan for the security of gas supply was adapted for the first time by Royal Decree in April 2022 and a second time in September (A.M. of 8 September 2022). With these adaptations, Belgium has also complied with EU Regulation 2017/1938 by providing a robust definition of solidarity protected customers. With this contingency plan, a disconnection plan for unprotected customers was also foreseen.

The operationalisation of this new emergency plan is currently under way. Additional legal bases will also be provided for certain measures. For certain measures in the emergency plan, the Belgian State must intervene directly. This year, work is ongoing on what these potential interventions should look like, for example a "sender of last resort", and whether and how they can be brought into line with current EU legislation.

Finally, at European level, in terms of security of natural gas supply, many things are changing particularly fast and are currently being achieved mainly through temporary emergency regulations. In the future, we will continue to monitor the possible renewal or adaptation of EU Regulation 2017/1938 and align our national framework accordingly.

In view of the scheduled cessation of Dutch gas extraction in Groningen, Belgium is forced to phase out the use of low calorific gas (L-gas). To this end, a conversion plan has been developed to supply the entire transmission and distribution network with H-gas by 2030. However, this timetable has been shortened at the request of the Dutch Government. Belgium has therefore accelerated the planned conversion and will now reduce its demand for L gas to zero by the end of 2024. The accelerated conversion is taking place as planned so far. After 2024, only L gas will still be transported to France via the transmission network until 2030 at the latest, when France will also have to complete its conversion.

This conversion has the positive effect of improving in principle Belgium's security of supply, since there are more sources of H gas than L gas overall. For L gas, Belgium is now entirely dependent on the Netherlands and cannot use other channels to enhance this security of supply.

Electricity

Total electricity demand today accounts for 17.5 % of total energy demand in Belgium. However, electrification of the transport, heating and industry sectors is expected, which will increase the share of electricity in the energy mix. It is therefore essential to maintain the current level of reliability and accessibility of supplies.

Over the past year, the electricity sector has also faced significant challenges. Lower gas supplies and higher prices due to Russia's invasion of Ukraine have raised questions about the availability of gas-fired power plants. The unavailability of a significant part of the French nuclear fleet has also raised concerns about the supply situation.

In response, the Federal Government has taken several steps to ensure security of supply:

- A further extension of the duration of operation of the Doel 4 and Tihange 3 nuclear reactors for 10 ans was decided after taking into account the results of the environmental impact assessment, public consultation, consultation of competent authorities and transboundary consultations. Negotiations with the operator of the Belgian nuclear power plants, ENGIE, have been launched to reach an agreement on the conditions under which a 10-year extension of

Doel 4 and Tihange 3 could be carried out.

- The implementation of the capacity remuneration mechanism (CRM), even in the presence of the 2 GW of nuclear power as of November 2026, is still necessary in view of the significant need for capacity as demonstrated by the Adequacy and Flexibility study of 2021. Informal contacts with the European Commission were made on this issue in summer 2022 to justify the need to continue implementing the mechanism despite a possible extension of nuclear power stations.
- In December 2022, a security of supply risk analysis by 2030 was prepared, taking into account the deteriorated availability of French nuclear power stations.
- Accelerating the development of onshore and marine renewable energy by removing tax barriers and incentives to boost domestic production.

In addition, measures have been taken under Regulation 2022/1854 to achieve the demand reduction targets. This Regulation provides for a voluntary target of 10 % reduction in total gross electricity consumption and a binding target of 5 % reduction in electricity consumption during peak hours.

A large-scale information campaign entitled “I have an impact”³¹⁸ was already launched before the adoption of the November 2022 legislation also saw the launch of the EnergyWatchers website³¹⁹. This site contains more than 115 energy saving advice, divided into 5 areas (green energy, housing, household appliances, travel and consumption) and classified according to their level of impact. There are different types of advice: behavioural advice, purchasing and environmental advice, bonus advice and advice with additional information. Finally, each board also has a level of investment (between EUR 0 and more than EUR 10 000), so that everyone can make their choice, based on their own resources.

Combined with the impact of behavioural change due to high electricity prices and measures taken at regional level to reduce demand and promote the production of renewable energy sources, this has ensured that, so far, the European targets for reducing general energy consumption and during peak hours have always been largely met. A follow-up can be found on the FPS Economy website³²⁰.

However, the campaigns that have been developed will in future form part of the *toolbox* that can be used in case of electricity supply problems.

Recent incidents and developments have also contributed to strengthening the electricity crisis policy. Following the floods in July 2021, which severely affected the energy infrastructure in the province of Liège, an assessment report was prepared and approved by the Crisis Management Working Group of the Directorate-General for Energy of the FPS Economy. The concerns arising from this evaluation report were addressed in the course of 2022. As part of the measures taken to mitigate the impact of Russia’s invasion of Ukraine on energy supply, a reflection is also ongoing on how to further optimise crisis management.

The ‘Electricity Sector Risk Preparedness Plan’ is a central document of the electricity crisis policy. In addition to the state of play of the current crisis policy, this document also identifies the action points to be addressed in the short and medium term. The basis for this plan is a risk analysis of possible electricity crisis scenarios, to which the existing and planned measures are linked. Three main

³¹⁸ I have an impact ", Belgium.be, 2022. <https://www.jaiunimpact.be/>

³¹⁹ Website EnergyWatchers, onderdeel van Klimaat.be (Dienst Klimaatverandering), 2022. <https://www.energywatchers.be/nl>

³²⁰ Monitoring of European electricity consumption targets, FPS Economy (fgov.be), 2023.

<https://economie.fgov.be/fr/themes/energie/suivi-des-objectifs-europeens/suivi-des-objectifs-europeens>
<https://economie.fgov.be/fr/themes/energie/suivi-des-objectifs-europeens/suivi-des-objectifs-europeens>

categories of measures are identified: risk prevention, preparedness and planning. In the coming years, the focus will be on strengthening existing contingency plans, quantifying risk analysis focusing on the potential impact of climate change on the resilience of the electricity grid and infrastructure, risk chain analysis (including possible vector cross-effects of the incident and planned measures) and further development of preventive measures.

Oil

The share of petroleum products in final energy consumption in Belgium has been on average 49 % since 2011, which is higher than the share in primary consumption. Although the measures taken to combat the coronavirus have mainly affected the consumption of petroleum products, their share of total final energy consumption remains very dominant: 47.5 % in 2019 and 46 % in 2020.

Final consumption of petroleum products in Belgium is broken down into energy consumption (68 % of total consumption in 2019 and 67.5 % in 2020) and non-energy consumption (32 % in 2019 and 32.5 % in 2020).

In Belgium, most of the energy consumed is imported. The country's energy dependency (the ratio of net imports to domestic consumption) is around 80 %.

Oil and petroleum products account for a significant share of energy imports, almost 60 % in 2019 and 2020. The majority of crude oil imports in 2019 and 2020 come from OPEC + countries (35.2 % in 2019) and Russia (32.4 %).

Crude oil is imported by the ports of Rotterdam, Antwerp and Amsterdam to be refined in the Netherlands or Belgium and become petroleum products, mainly fuels, exported within Europe.

The supply of oil and petroleum products to Europe in 2022 was fundamentally modified by the Council's decision to stop imports of oil from Russia to the EU, on the basis of European Council Regulation 833/2014 of 31 July 2014 as amended by Council Regulation 879/2022 of 3 June 2022 concerning restrictive measures in response to Russia's actions destabilising the situation in Ukraine.

On 4 June 2022, the European Commission published the sixth package of sanctions against Russia to reduce Russia's revenues from energy products. The sixth package of sanctions includes a ban on imports of oil (from 5/12/2022) and petroleum products (from 5/02/2023). In October 2022, the European Commission decided to impose an additional price cap on Russian exports to non-EU countries. European companies will not be allowed to offer financial support or services for transporting Russian oil to third countries if the products are not sold below a price cap.

European companies have managed to maintain the level of commercial stocks, thus alleviating the uncertainties linked to shortages due to the Russian embargo. Europe also imports more oil from other countries:

- Crude oil is now mainly imported from Africa and the Middle East.
- Finished products, mainly gas oils (including diesel), are now mainly imported from China, India and the Middle East.

However, the European Commission recommends that Member States replenish strategic oil stocks at least to the minimum level imposed by Directive 2009/119/EC, given the impact of the embargo on Europe's oil supply.

The government asked APETRA (Oil Agency), responsible for the management of strategic oil resources, to replenish the strategic stocks made available to Ukraine in 2022.

In line with the provisions of the oil crisis policy, the federal government decided to strengthen the oil crisis policy in 2022-2023.

Security of energy infrastructure

The security of the Belgian energy infrastructure helps to ensure energy security. This includes physical security, cybersecurity and protection against internal threats, through staff screening.

The respective cross-sectoral legal frameworks provide for risk-based identification in order to select relevant actors to meet certain safety requirements. For the energy sector, infrastructure, sites, companies, etc. have been identified as contributing significantly to energy supply in Belgium and neighbouring countries.

Physical security focuses mainly on the protection of critical infrastructure sites against man-made hazards (including destruction or damage by terrorism). Operators shall take the necessary, permanent and therefore continuously applied measures, as well as graduated measures adapted to the level of the threat.

Cybersecurity requires measures to manage network and information system security risks, which are necessary for the continuous provision of services essential for the maintenance of social and economic activities, and to prevent incidents. In addition, if an incident occurs, measures must also be taken to minimise the impact of the incident on essential services.

To mitigate the residual risk, companies may have staff screened who work in sensitive areas and for whom physical or IT security measures are not adequate on the basis of a risk assessment.

All measures imposed on companies under these laws contribute to making the energy system more reliable and stable. Measures taken by undertakings are included in safety plans, which are subject to structural monitoring through controls and inspections. If necessary, as in the case of explosions on NordStream pipelines, additional checks and inspections are carried out. The procedure for identifying the undertakings concerned is reviewed and evaluated regularly (normally every two years).

Belgian legislation on physical and cyber security is based on European directives. The European Commission has recently analysed and updated these two Directives. This update will also have an impact on the security of the Belgian energy infrastructure. As the adjustments have been adopted very recently at European level, the implementation of the new directives in Belgian legislation has not yet been finalised, so the actual impact is not yet clear. What is certain is that the scope, risk analyses and measures will be broadened for both physical and cybersecurity, with a stronger focus on an 'all-hazard approach' and on the resilience of the companies concerned.

Regional cooperation in this area

The basis for this plan is an analysis of the risks to the national oil market, identified and classified according to the various links in the planned oil supply chain.

Secondly, on the basis of the different crisis levels developed by the SPF's Directorate-General for Economic Affairs, measures will be linked to each crisis level in order to mitigate the impact of any shortfall.

Three categories of measures are identified, depending on the electricity carrier: preventive, preparedness and emergency measures.

The procedure for releasing strategic oil stocks in the context of a supply crisis remains unchanged.

However, the emergency plan must also include a procedure for the implementation of demand reduction measures and the supply of priority consumers.

The contingency plan will also include a distribution plan for petroleum products in the event of a supply crisis and will allow the products to be transported to local traders and consumers concerned. The contingency plan should be finalised by summer 2023.

Critical raw materials

The technologies and products needed to achieve the energy transition – inter alia in battery technologies, wind turbine production and solar panels – will also significantly increase demand for various scarce raw materials. However, international analyses show that extraction and processing processes are often highly concentrated geographically, creating strategic dependence.

Building on the European concept of open strategic autonomy, supported by *the Chips Act* and the *Critical Raw Materials Act*, among others, dependencies have been mapped. In addition, in-house expertise and capacity have been expanded to obtain a better vision of the resilience of the entire value chain of products essential for the energy transition. It was decided to set up a knowledge centre within the Federal Institute for Sustainable Development (IFDD) to address critical mineral issues.

Security and cybersecurity of Belgian energy infrastructure

The security and cybersecurity of energy infrastructure is essential as it contributes to ensuring the country's security of supply. The war in Ukraine has shown us the critical importance of this infrastructure in Europe and Belgium. In 2022, the Minister for Energy designated new critical infrastructures and operators of essential services in order to raise the level of security and cybersecurity in the energy sector. Anticipating the entry into force of the European Directive on the Resilience of Critical Entities (CER), the Law on Security and Critical Infrastructure Protection will be adapted in 2023 to include internal and external audits for relevant energy operators. In addition, the legal framework for safety plans for critical energy infrastructure will also be updated and strengthened.

Country of Penta

In their Memorandum of Understanding on emergency planning and crisis management in the electricity sector signed on 26 June 2017³²¹ in Luxembourg, the Penta countries reached an agreement to seek joint coordination of national and regional measures in case of a simultaneous emergency in the region comprising Belgium, Germany, France, Austria, Luxembourg, the Netherlands and Switzerland.

Following the entry into force of Regulation (EU) 2019/941 of the European Parliament and of the Council of 5 June 2019 on risk-preparedness in the electricity sector and repealing Directive 2005/89/EC (Risk Preparedness Regulation), the first two steps towards a well-coordinated regional framework on risk preparedness were the drafting of a joint Penta chapter on risk preparedness and the signature of a Memorandum of Understanding on risk preparedness in the electricity sector. Both

³²¹Memorandum of Understanding of the Pentilateral Energy Forum on Emergency Planning and Crisis Management in the Electricity Sector, 26 June 2017:
https://www.benelux.int/files/7515/1749/6862/Penta_MoU_emergency_planning_and_crisis_management_in_power_sector_signed.pdf.

documents aim to meet the requirements for regional and bilateral measures under Articles 12 and 15 of the Risk Preparedness Regulation. The first version of the common Penta chapter on risk preparedness was notified to the European Commission in January 2022. The common chapter was then incorporated into the national risk preparedness plans of the Penta countries. The Memorandum of Understanding on Risk Preparedness was signed on 1 December 2021³²² in Brussels by the energy ministers of the Penta countries. Both documents serve as a basis for the action points identified by the Penta risk group. This risk group is a sub-group of Working Group II which focuses mainly on risk preparedness. The measures taken in 2022 by this risk group, the radically different energy geopolitical context and the opinions published by the European Commission on national risk preparedness plans (in line with Article 13 of the Risk Preparedness Regulation) formed the basis for this updated version of the common Penta chapter on risk preparedness.

The Penta Forum also demonstrated its added value by addressing the impact on energy supply after the Russian invasion of Ukraine in February 2022. Several ad hoc meetings have been scheduled to discuss the implementation of the EU policy packages and to exchange information on measures already taken or planned.

Gas Coordination Group

In addition to being followed up in the Pentalateral Energy Forum, security of natural gas supply is also monitored in the Gas Coordination Group of the European Commission between the administrations of the EU Member States and, to a limited extent, with the UK administration. Exercises are also organised in the framework of this forum, for example in December 2022 on the solidarity mechanism.

International cooperation

Belgium will continue to engage in European and international fora to ensure security of supply, for example by advocating for joint purchasing, price caps in the wholesale gas market and changing the electricity market model at EU level. In addition, additional actions are also being undertaken in the field of energy and materials diplomacy, both at political and administrative level, at global and regional level. These actions are carried out through bilateral and multilateral contacts and through international organisations and/or consultation platforms such as the EU, IEA, IRENA, Penta Energy Forum, North Sea Energy Cooperation, North Sea Summit, Gas Coordination Group, MoUs with Norway and the UK, etc. (see below).

11. Bilateral agreements with non-EU countries

Norway: Joint Declaration on Energy Cooperation (19 March 2018) and Memorandum of Understanding on Energy Cooperation on the North Sea (23 February 2022).

- The declaration shall include areas of cooperation:
 - Exchange of information on long-term scenarios and visions of national energy policy.
 - Study on possibilities for increased gas and electricity cooperation.

³²² Memorandum of Understanding of the Pentalateral Energy Forum on Risk Preparedness in the Electricity Sector
https://benelux.int/files/7216/3845/2580/PENTA_MoU_def.pdf

- Exchange of best practices (e.g. market design, public acceptance, sustainable mobility).
- The Memorandum of Understanding aims to:
 - Promote cooperation in offshore wind, hydrogen and carbon capture and storage (CCS), and share technical knowledge, advice, skills and expertise in these areas.
 - Establishing and formalising cross-border cooperation on CCS.
 - Take practical arrangements in good time and, where appropriate, conclude cooperation agreements on matters covered by this Memorandum of Understanding.

United Kingdom: Memorandum of Understanding on cooperation for decarbonisation and future electricity interconnection (2 May 2022)

- Objective: Extended cooperation on hydrogen, CO₂ and electricity interconnection
 - The Nautilus Working Group is ongoing and aims to develop the hybrid electricity connection between the two countries
 - The hydrogen working group was launched: the hydrogen strategy exchange has started.
 - The CO₂ consultation working group will be launched at a later stage
- Scope and areas of cooperation:
 - Practical development of the Nautilus interconnection: meetings between governments, network operators and regulators
 - With regard to hydrogen, it will be discussed after the general exchange on how the two countries can cooperate on import and storage.
 - With regard to CO₂, it will be examined how vacant gas and oil deposits can be used for storage.
 - The Electricity Working Group is exploring how further cooperation can be achieved after the completion of the work on the Nautilus project.

Oman: Memorandum of Understanding on Green Energy (6 September 2021)

- Objective:
 - Promote and develop cooperation on green energy, in particular in the areas of green hydrogen, on a mutually beneficial basis.
 - Achieve the Oman Vision 2040 and the EU Green Deal targets to set the path towards carbon neutrality in Oman and the EU, in line with the Paris Agreement and the Belgian NECP.
 - Addressing the urgent need to increase the production of green hydrogen outside the EU and Belgium in a coordinated and timely manner, ensuring a secure, competitive, available and sustainable energy supply, while strengthening international cooperation to create a global green energy market.
- Scope and areas of cooperation (excluding the specific scope of Oman):

- Supporting the collaborative efforts of Belgian and Omani companies to form an international consortium to produce and import green hydrogen into Belgium and neighbouring countries.
- Taking into account the potential importance of each country and the importance of their respective industries in the entire green hydrogen value chain.
- The interaction between the different public bodies responsible for energy policy implementation for the exchange of knowledge and information on green hydrogen.
- Implementation of green certification standards for electrification of networks.
- The interaction between universities, scientific research institutions and the private sector in both countries to train, educate and exchange students and promote research and development, as well as other forms of technical assistance and training associated with the Belgium-Oman green hydrogen value chain.

Namibia: Memorandum of Understanding on cooperation in the field of green energy (4 November 2021)

- Objective:
 - Promote and develop cooperation on green energy, in particular in the fields of green hydrogen and green ammonia, on a mutually beneficial basis.
 - Achieve the objectives of Namibia's Harambee Prosperity Plan II and the EU Green Deal and the Fit for 55 package to set the path towards carbon neutrality in Namibia and the EU, in line with the Paris Agreement and reinforced by COP26 in Glasgow.
 - Addressing the urgent need to increase the production of green hydrogen outside the EU and Belgium in a coordinated and timely manner, ensuring a secure, competitive, available and sustainable energy supply, while strengthening international cooperation to create a global green energy market.
- Scope and areas of cooperation (excluding Namibia's specific scope of application):
 - Support the collaborative efforts of Belgian and Namibian companies to form an international consortium for the production and distribution of green hydrogen and green ammonia for local, regional and international exports to industrial hubs in Belgium and other EU countries.
 - Encourage the interaction between the different public bodies responsible for energy policy implementation for the exchange of knowledge and information on green hydrogen.
 - Encourage the implementation of certification standards for renewable electricity, green hydrogen and green ammonia.
 - Support the interaction between scientific research institutions and the private sector in both countries to conduct, exchange and promote research and development, as well as other forms of technical assistance and training associated with the value chain of green

hydrogen utility between Belgium and Namibia.

III. Where appropriate, funding measures in this area at national level, including Union support and the use of Union funds

3.4. Dimension of the internal energy market

Sections 3.4.1 and 3.4.2 fall within the competence of the Federal Government. The other parts contain shared competences.

3.4.1. Electricity infrastructure

- i. Policies and measures to achieve the level of interconnection envisaged in Article 4(d);*

Electricity

Taking into account the recommendations of the “Commission Expert Group on Electricity Interconnection Targets 2030”, the Transmission System Operator Elia took the initiative to set up studies with the relevant TSOs in neighbouring countries to explore the development of additional interconnectors across borders. These initiatives were reiterated in the TYNDP18 and in the new Federal Development Plan 2020-2030, approved on 26 April, 2019³²⁴. The Federal Development Plan 2024-2034, which was the subject of a public consultation from 1 November 2022 to 16 January 2023 and will be submitted to the Government for approval in May 2023, builds on these elements.

The Federal Development Plan 2024-2034 indicates that the development of the 380 kV network is characterised by 3 pillars:

1. **Offshore grid expansion and integration:** for further integration of offshore renewable electricity generation and additional interconnection with neighbouring countries.
2. **Further development of terrestrial interconnection capacity:** integrate renewable energy at European level while having access to the most competitive prices on the international market that ensure price convergence.
3. **Creation of reception capacity:** to integrate domestic renewable energy generation, connect new generation units and transport additional international power flows.

The figure below summarises the main investments in the 380 kV network for the period 2024-2034.

³²⁴ <https://economie.fgov.be/sites/default/files/Files/Energy/Federaal-ontwikkelingsplan-van-het-transmissienet-2020-2030-Elia.pdf>

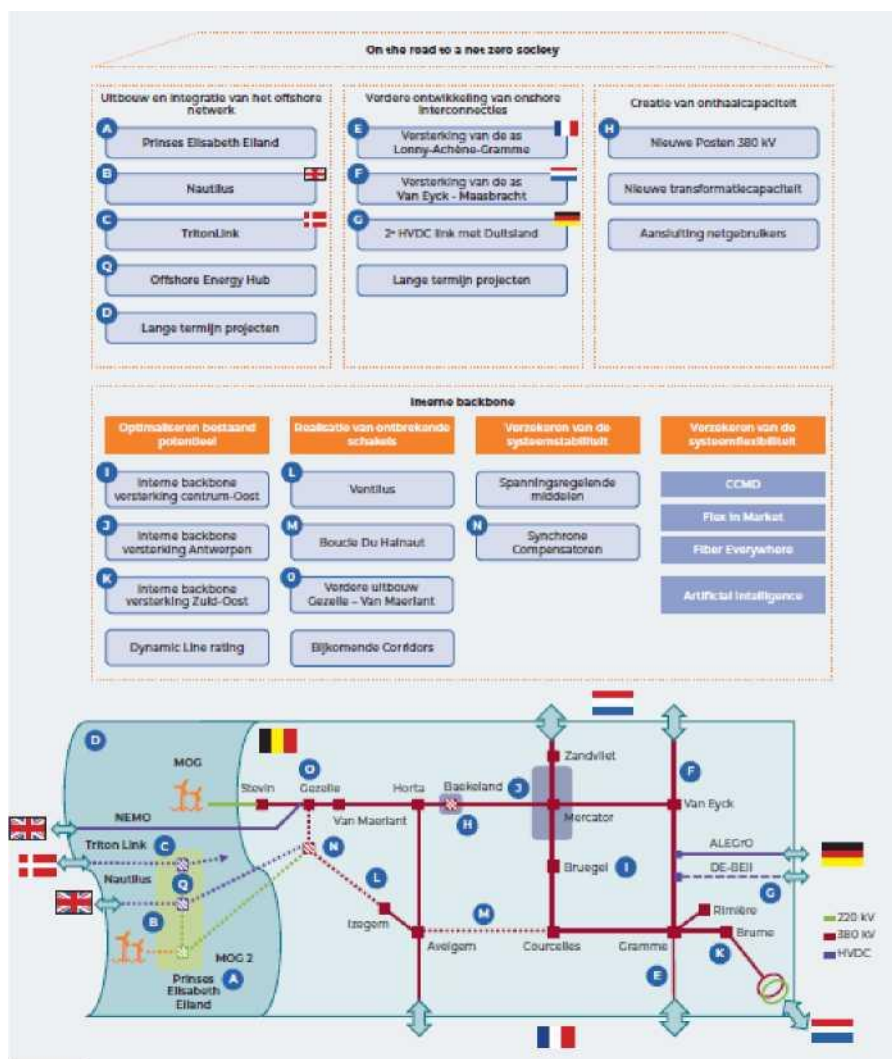


Figure 7: Overview of the infrastructure works of the horizontal system 2024-2034
Source: Elia, Draft Federal Development Plan 2024-2034

Natural gas

Belgium already has a well-functioning and highly developed natural gas network, with a solid internal infrastructure complemented by interconnections with all neighbouring countries, an LNG terminal in Zeebrugge and a storage facility in Loenhout. In addition, the Belgian transport operator Fluxys holds significant stakes in key projects in Central and Western Europe. This provides additional flexibility, contributing to the attractiveness of the Belgian natural gas market and enhancing security of supply. The latest investment plan of Fluxys Belgium therefore focuses on increasing the regasification capacity of the LNG terminal in Zeebrugge and increasing capacity on the Desteldonk-Opwijk road (West East). In addition, Fluxys Belgium plans (subject to the designation of a Hydrogen Network Operator) to further develop and convert its existing network in order to gradually replace natural gas with hydrogen.

This will allow us to consolidate our position as a hub for molecules in Central and Western Europe. It will also allow us to respond to additional and/or delocalised demand and respond to new market developments.

ii. Regional cooperation in this area

Penta

Regional cooperation at government level takes place mainly through the Pentalateral Energy Forum (Penta). Created in 2005, it is headed by the energy ministers of the region (Benelux, Germany and France, enlarged to Austria and Switzerland as an observer), who meet regularly. The main focus of the Forum is the completion of the internal energy market. The focus is on integrating renewables, with the start of supply market coupling on the same day, removing barriers to cross-border trade in products in the short term and finalising the list of compatible roles and responsibilities in the DSR market.

There are four support groups: support Group I: market coupling, co-chaired by German and French coordinators, Support Group II: security of supply, co-chaired by the Luxembourg and Belgian coordinators, Support Group III: flexibility, co-chaired by the Dutch and Swiss coordinators, and Support Group IV: hydrogen, co-chaired by Dutch and Austrian coordinators.

The Forum is operated on a daily basis by the Secretariat, provided by the Benelux Secretariat.

A political declaration was signed in March 2022 to strengthen coordination on natural gas storage, following the discussions on 2 December 2021 on measures to make the transition to clean, secure and resilient energy.

Penta implements a work programme around the Pentalateral Hydrogen Policy Declaration 2020, which contains a set of common principles on the role of hydrogen in decarbonising the energy system

The risk-preparedness plan for the electricity sector is discussed in a working group on risk preparedness within the Pentalateral Energy Forum and contributed to the preparation of the final risk preparedness plan for Belgium.

In May 2022, Penta participated in a simulation exercise to prepare for a major electricity crisis “Black-out 22” initiated by France, in order to enhance communication flows between neighbouring countries. A workshop based on the lessons learned from this exercise was organised in June 2022 under the Belgian Presidency.

A “cybersecurity in energy” crisis exercise will be organised in autumn 2023 under the Dutch Presidency.

North Seas Energy Cooperation (NSEC)

On 3 December 2010, a Memorandum of Understanding was signed by 10 countries and the European Commissioner for Energy. These ten countries (Belgium, Denmark, France, Germany, Ireland, Luxembourg, Norway, Netherlands, Sweden and the United Kingdom) have committed to developing an offshore grid in the North Sea that will help ensure future security of electricity supply and the necessary onshore connections. They share the common objective of moving towards a low-carbon economy while maintaining energy security at the lowest possible cost for consumers.

On 6 June 2016, the countries and the European Commission signed the renewed Political Declaration. The Political Declaration builds on existing initiatives.

Belgium is actively co-chairing the Task Force Delivering 2050, which is exploring with network operators how to achieve the ambitions of the different countries. Bilateral and multilateral agreements have been signed with Denmark, Germany and the Netherlands to accelerate the

construction of the offshore grid in the North Sea, as evidenced by the Esbjerg Declaration of 18 May 2022. A “fast track” study has been launched to examine how the offshore network can be built more quickly and whether there are alternatives to the current plans.

A key ministerial meeting was held in Dublin in September 2022 on the 2030-2040-2050 objectives which will serve as a basis for the submission to the European Commission of the Offshore Network Development Plan under the Trans-European Networks for Energy (TEN-E) Regulation.

- iii. Where appropriate, funding programme in this area at national level, including EU support and the use of EU funds*

3.4.2. Energy transmission infrastructure

- 1. Policies and measures relating to the elements listed in point 2.4.2, including, where appropriate, specific measures to enable the implementation of projects of common interest and other major infrastructure projects.*

Adapting transport infrastructure to the energy transition

Additional interconnection (incorporation into offshore meshed network)

- Objective Existing/Update
 - Invest in electricity grids (Elia), and in particular in interconnections with neighbouring countries.
 - Develop infrastructure to ensure electricity flexibility and improved energy storage.

AS regards the development of the electricity grid, the Federal Government will liaise regularly with the countries concerned and seek to increase support for citizens, businesses and local authorities in order to ensure the timely implementation of these important projects. A concrete demonstration of this objective is the adaptation of the procedure for drawing up the federal network development plan. In practical terms, it is necessary to be able to direct the projects described in the given direction and to monitor their implementation by increasing their frequency. As regards the development of the transmission network, the secondary objectives are: Ensure the use of the most efficient technologies as far as possible.

Progressively reduce harmful substances, such as SF₆, taking into account the fact that the market for alternatives is still at an early stage and that investments are for long periods (40 years).

- Priority Measure/Key Action/Flagship Actions (description)
Optimisation of the cycle, implementation and monitoring of the federal electricity grid

development plan.

- Flagship actions
/
- Other measures
/
- Operationalisation (implementation)
 1. Follow-up to the current development plan (2020-2030)
 2. Approval of the next network development plan (2024-2034)
 3. Proposed legislative amendment and RD amendment
 - Progress in implementation
 1. Implementation of the current federal development plan: pending a decision by the competent regional authorities on the key elements of the infrastructure.
 2. Next Federal Development Plan: ongoing and on track
 3. The amendment of the legislative elements and the revision of the process are ongoing and well underway.
- Impact
 - *Impact GES*

Has been limited (use of SF6) and is still under consideration due to slow marketing of available good substitutes.

The extension of the transmission network and the timely implementation of the projects foreseen for this purpose in the Federal Development Plan are essential for the energy transition and therefore for the achievement of our country's climate and energy targets.
 - *Energy impact*

There is no direct impact on energy consumption, but there is a facilitation of the energy transition. This concerns mainly the integration of renewable energy production and the projected growth of residential and industrial electrification. However, these elements are included in other roadmaps and therefore any energy impact is not directly attributable to the evolution of the federal electricity transmission network. However, an expansion of the federal transport network is essential to achieve this transition.
- Budget
/

Projects of common interest (PCIs)

In 2022, 4 electricity projects were submitted for the 6th PCI/PMI list:

- BRABO II and III (reinforcement in Antwerp)
- Lony-Achène-Gramme (connection with France)
- Tritonlink (line to Denmark)
- Nautilus (hybrid interconnector with the UK)

A (first) hydrogen project was presented:

- Hydrogen pipeline CH2-4EU to the Netherlands and Norway with terminal in Antwerp

Three CCS projects were extended or submitted:

- Northern Lights (pipes to Norway, the Netherlands and Germany)
- EU2NSEA (pipeline to Norway and terminal in Zeebrugge)
- CO2Transport (pipeline to Rotterdam)

Finally, Belgium supports the Aramis project in the North Sea.

Belgium encourages the companies concerned to submit cross-border cases. These files are actively supported and guided by the Belgian (federal and regional) administration because, on the one hand, they contribute to the development of Belgian infrastructure and, on the other hand, increase interconnection with neighbouring countries.

Consultation between the competent authorities will be strengthened with a view to simplifying the issuing of the permits required for the development of new means of production and the adaptation of the networks needed for the development of renewable energies. In this context, the one-stop-shop approach will be systematically applied for energy infrastructure projects of national importance. Particular attention will be paid to reducing the administrative burden for project promoters.

ii. Regional cooperation in this area

All dossiers are examined by the TEN-E regional committees and, as far as possible, the dossiers are submitted jointly (e.g. the FR/B dossier on the conversion from L to H-gas).

In addition, the regional partnerships mentioned in the context of electricity infrastructure also address issues related to energy transmission infrastructure.

- iii. Where appropriate, funding programmes in this area at national level, including EU support and the use of EU funds*

If necessary, CIP projects can draw on EU funds such as the Connecting Europe Facility (CEF), for which they are also supported and guided by the federal government. List of CIP projects see section 3.4.2. i.

3.4.3. Market integration

i. Policies and measures related to the elements of Section 2.4.3;

Belgium will closely monitor the capacity commercially available on interconnections with neighbouring countries. If necessary, the correct and timely implementation of the action plans drawn up in accordance with the Regulation on the internal market for electricity will also be closely monitored in order to ensure that its security of supply policy is not compromised.

ii. Measures to make the energy system more flexible with regard to renewable energy generation, including smart grids, aggregation, demand response, storage, distributed generation, dispatching, redispatching and mitigation mechanisms, and real-time price signals, including the deployment of intraday and cross-border balancing market coupling.

Efforts are being made at federal and regional level to improve demand and consumption matching. For example, measures are taken to attract adequate investment to achieve a complementary energy mix, technical regulations and regulatory regimes are regularly reviewed to empower producers, and barriers are removed so that consumers can actively participate in the market.

At regional and European level, the gradual integration of the intraday and balancing markets will be continued in order to increase liquidity, security of supply and system flexibility. Flexibility solutions should be considered jointly at federal and regional level.

Federal State

At federal level, for example, particular attention will be paid to the potential of hydrogen technologies to convert surplus renewable energy into energy and economic processes (e.g. Power-to-Gas, Power-to-Industry, Power-to-Mobility), focusing on the development of a roadmap and the launch of pilot projects.

In order to strengthen (energy) infrastructure, legal certainty and investment certainty for projects should be increased by simplifying permit applications.

Flemish Region

Policies and measures to promote flexibility of the energy system

The Flemish flexibility measures are grouped into the following four policies

1. Promoting the digitalisation of the energy system through the deployment of digital meters
2. Implementation of the flexibility of the regulatory framework and the flexibility plan 2025
3. Development of a regulatory and enabling framework for energy communities
4. Modernising and strengthening the electricity grid

1. Promoting the digitalisation of the energy system through the deployment of digital meters

In the coming decades, our energy system will need to become more connected, smarter, efficient, robust and sustainable. Digitalised energy systems provide much more data and will be able to determine who needs energy to deliver it at the right time, at the right place and at the least cost. The supply of energy services, with all its possibilities and comfort, will also increase, improving market integration. The greatest potential of digitalisation lies in the ability to remove barriers between traditional sectors (electricity, gas and heat), increase flexibility and enable system integration.

This requires that all network users have a digital meter. On 17 July 2020, the Flemish Government decided **to speed up the deployment of digital meters**. The aim is to put in place all digital meters by 1 July 2029. 80 % of meters shall be installed by 31 December 2024. Several actions are launched to encourage smart use of digital meter

2. Implementation of the flexibility of the regulatory framework and the Flexibility Plan 2025

The transposition of the Fourth European Electricity Directive through the EMD Decree and the EMD Decisions created a **Flemish regulatory framework for flexibility**.

- The EMD Decree³²⁵ approved by the Flemish Parliament on 31 March 2021 introduces a number of new roles such as the flexibility participant, the provider of flexibility services and the applicant for flexibility, each having their own rights and obligations. This decree introduces a number of new tasks and obligations for the electricity distribution system operator and the local electricity transmission system operator. The role of the Network Manager in data management will be expanded so that it can act as data manager, also in the context of flexibility. In addition, network operators will have to draw up short-term (three years) and long-term (10 years) investment plans, indicating how they will use flexibility in managing their network. There is also a collaboration between the electricity distribution system operator and the transmission system operator on the activation of flexibility on the electricity distribution system depending on one of the transmission system operator's products.
- On 20 May 2022, the Flemish Government approved the Decree amending technical flexibility. The Decree defines the categories of distribution system users and users connected to the local electricity transmission system to which the reserved technical flexibility applies and the electricity generation and storage facilities to which the unreserved technical flexibility applies. It also lays down the methods for calculating compensation in the case of reserved technical flexibility and the situations in which compensation is granted, as well as the methods for calculating compensation in the case of non-reserved technical flexibility.

On 28 October 2022, the Flemish Government approved **the Vision Note for the Flexibility Plan 2025**. The Flexibility Plan 2025 includes 20 actions in the following areas: (1) research, (2) communication and awareness raising, (3) regulation and policy, (4) data and indicators, (5) Flemish government, (6) innovation and training and (7) standardisation and cybersecurity. The plan is designed as a rolling action plan which, in the course of its implementation, removes the actions carried out and adds new ones that are necessary to achieve the predefined objective.

Concrete action points include:

- Extension of the Sturing elektrische Verwarming premium (SEW)

³²⁵<https://docs.vlaamsparlament.be/pfile?id=1668780>

- Commit to communicating and supporting flexibility
- Assess regulatory barriers to participation in implicit and explicit flexibility and energy storage
- Digital electricity meters shall be recorded per quarter of an hour and digital natural gas meters per hour.
- Enhancing additional flexibility in industry and businesses
- Mapping and harnessing the potential for flexibility at the level of the Flemish Authority
- Mapping and exploiting the potential for smart charging and flexibility at De Lijn

3. Development of a regulatory and enabling framework for energy communities

Strengthening the involvement of citizens, local authorities and businesses on energy is essential in order to increase social ownership of the energy transition and the further development of renewable energy projects. The concept of energy communities provides an interesting framework for developing and testing new forms of participation (citizen) with a focus on the collective or individual level.

The regulatory framework (the 'EMD Decree') on renewable energy communities and civic energy communities was approved by the Flemish Parliament in March 2021. Subsequently, at the end of 2021, the implementing decree on energy communities and energy parts was approved by the Flemish Government. At the same time, Fluvius facilitates energy sharing through the Mijn Fluvius web portal. This new regulatory framework will be the subject of an initial review in 2023, which could lead to adjustments.

We provide a policy framework that facilitates the development of energy communities and removes, as far as possible, administrative burdens and legal barriers. We focus on informing, raising awareness and assisting project participants and initiators. Additional support instruments are also foreseen, where appropriate. In addition, it is ensured that solidarity between all network users is maintained by contributing fairly to the financing of climate and energy policy and the energy infrastructure that supplies every consumer.

4. Modernising and strengthening the electricity grid

Low-voltage networks still seem sufficiently sized to meet the current demand for photovoltaic panels, heat pumps and electric vehicles. It will soon be necessary to choose between a proactive tightening of existing networks or a temporary voluntary restriction of access through greater flexibility. In order to better understand current and future capacity needs based on substantiated assumptions, a study was launched in collaboration with Fluvius, VREG and VEKA.

As a result of an amendment to the Energy Decree, network operators are required to prepare annual investment plans for 3 and 10 years. The plans must be submitted for consultation and finally approved by the VREG. On 31 March 2023, the VREG approved the investment plans for the local distribution and transmission network for the next 3 and 10 years. The establishment of 400 V networks is also part of Fluvius's electricity investment plan.

In the coming years, the process of preparing investment plans will be developed and refined. The Vlaams Energie en Klimaatagentschap (Flemish Energy and Climate Agency) is following this work and, if necessary, the rules will be adapted. In addition, it will be constantly ensured that investment plans take into account all the decisions and ambitions of the Flemish Government in order to ensure that the electricity networks are ready for the future.

In addition to the transparency of investment plans in network-related assets, understanding of future plans, investments and the roadmap for data management and related ICT development is also crucial for the transition of the electricity system. This is where Fluvius plays an important role as a data manager.

Region Walloon

Develop a framework conducive to the deployment of flexible and storage solutions

In order to maximise the potential of these new renewable energy production and consumption patterns, measures are and will be taken to target the adequacy of the electricity system with the increased local flexibility of the energy system. More specifically, they aim to develop a framework conducive to the **deployment of flexible and storage solutions, the development of smart grids** and, finally, demand response and dynamic pricing.

- Assessing the legal framework around flexible and storage solutions (Electricity Decree)

267	Adapt the legal framework around flexible and storage solutions (Electricity Decree)	Planned	PWEC

Although the potential gains from the use of flexibility by DSOs vary according to the networks and the assumptions made in the various studies, these can be divided into two categories: reducing network losses and reducing infrastructure investment needs.

Europe does not say anything else in Directive 2019/944 by promoting the use of flexibility for network operators and encouraging network users to become active customers who, among other activities, have an incentive to sell their flexibility.

Decree of 18/7/2018 amending, inter alia, the Decree of 12/4/2001 with a view to the deployment of smart meters and flexibility introduced the first beacons with a view to regulating flexibility, namely the right for all network users to make use of their flexibility and the introduction of a licence for aggregators.

The transposition of Directive 2019/944 into the Decree of 12/4/2001 should make it possible to make greater use of so-called commercial flexibility by reducing the volumes of technical flexibility and encouraging DSOs to make use of it, in particular when implementing adaptation plans.

In this way, the flexibility market should allow for the deployment of flexible solutions, storage and suitable use of electric vehicles.

New forms of energy use such as sharing within a community or within the same building should also encourage network users who are part of it to become flexible in order to maximise the self-consumption of shared energy. The same applies to individual self-consumers, who will have to adapt their consumption in view of the end of the compensation on an annual basis.

It is therefore important to give consumers more choice and opportunity in the energy services in which they wish to participate or join, so that consumer behaviour is the result of positive choices rather than constraint. Therefore, the implementation of these solutions must take into account their technical feasibility but also the diversity of household situations.

An assessment of the revised legal framework will have to be carried out following land returns (are there remaining barriers to be removed (economic and administrative barriers)? Is stimuli sufficient, what incentives need to be strengthened, etc.) and, if necessary, it will need to be refined?

- Amend the tariff framework in order to facilitate load travel

At present, two-hour tariffs are intended to guide consumers' behaviour by influencing the periods during which they will be careful to consume or do not consume. More fine rates, with more time slots, follow on from this framework. The definition of these tariffs will have to take into account the requirements of predictability and understanding of these tariffs for households.

In order to achieve the objective of developing flexibility, it has been decided to adapt pricing with multiple objectives:

- The charging system, among other factors, must support the displacement of consumption.
- The remuneration system for DSOs must encourage them to invest in the most economically efficient solutions; including flexibility solutions.
- The tariff methodology must contribute to the development of energy communities and sharing activities within the same building while ensuring a balance between solidarity in covering the overall costs of the networks as well as the contribution to taxes, surcharges and other regulated costs and the interest in participating in such an operation.
- The tariff methodology must not strengthen the dualisation of the market and must not negatively affect households that have chosen not to use flexibility, dynamic tariffs, etc. or are unable to use it.
- The tariff methodology must ensure a balance between solidarity in covering the overall costs of the networks as well as the contribution to taxes, surcharges and other regulated charges and the development of special schemes.

In order to meet these objectives, new guiding principles have been introduced in the Tariff Decree of 19 January 2017 so that each tariff component can incentivise network users to consume when electricity is abundant on the grid or to use individual grid access capacity compatible with the capacity available on the grid at the same time. These principles will therefore encourage load movements aimed at self-consumption 'locally' and simultaneously depending on the abundance of electricity on the grids. This Decree will serve as the basis for the new tariff methodology which CWaPE will develop, after consultation with the network operators, within the framework of its exclusive competence in this area.

Distribution tariffs could thus in future include proportional terms with several different timetables and capacity terms (including, where appropriate, fixed and flexible components depending on the availability of the network, in order to avoid overly large investments in the network).

The term capacity coupled with the use of home automation devices will make it possible, through load movements, to reduce the power taken when the networks are 'at the limit' of congestion.

Developing smart grids

- Set up the legal framework for the development of smart grids:

268	Setting up the legal framework for the development of smart grids	Planned	PWEC

Smart Grid covers all technologies and infrastructures to enable smarter network management. The aim is to ensure a better match between supply and demand at all times, so as to make better use of the infrastructure for both electricity generation and distribution, and to contain costs in the face of traditional

infrastructure development.

The development of smart grids is a central part of the development of energy policies as a result of the increase in renewable electricity and gas and the proliferation of new uses. The necessary legal framework will therefore be put in place, including the issue of energy storage.

In addition, the programme notice of 17 July 2008 introduced into the Electricity Decree of 12 April 2001 the possibility for CWaPE to authorise innovative pilot projects constituting alternative networks to the public network while using and remunerating the distribution network fairly.

More specifically, within a well-defined, time-limited and controlled framework, the temporary suspension of certain barriers (tariffs, taxes, obligations, etc.) in order to test and document the relevance and performance of projects aimed at implementing optimal technological solutions for the Walloon electricity market with a view to generalising the Walloon electricity market.

The pilot projects which may be authorised are in line with European energy policy, since they must relate in particular to the following areas: energy efficiency, demand-side flexibility, optimisation of development, management of decentralised production and promotion of local self-consumption and short supply chains.

This new possibility responds to a number of requests from the sector and will make it possible to better frame these various areas, where appropriate, in order to optimise their development.

- Support the smarticisation of networks:

269	Setting up support (grant to DSOs) for network smartening	Planned	PRW 64

In order to strengthen the smarticisation of the networks, support will be given to network operators in line with what is foreseen in the Recovery Plan for Wallonia. The aim is to set up a subsidy for distribution system operators for the installation of telescutters and remote-management equipment for the gas and electricity networks to optimise reception (injection) and energy distribution capacities.

The new tariff structure, which will encourage consumers to consume preferably when electricity is abundant and the grid is not saturated, will require better knowledge of the flows in real time (and in the form of consumption histories) on the networks (at different voltage levels), possibly with the possibility of acting on them or on certain settings (e.g. self-adaptive transformers).

The Recovery Plan foresees a budget of EUR 167 million for distribution system operators from 2022 to 2024.

- Support the deployment of communicating meters

372	Provide for a full rollout of communicating meters by 2030, while maintaining the right of individual choice in the activation of the communicating function. Priority will be given to financing the communicator meters through DSOs' investment plans.	New	

757	Adapt information requirements for households when activating pre-payment in vulnerable households	New	

In order to speed up the digitalisation of the energy sector, it is necessary to deploy communication meters. Without their rapid deployment, the entire development of services to satisfy consumers is slowed down.

Therefore, in order to encourage consumers to adopt this new tool, a premium for the placement of communicating meters is granted until 31 December 2023 to household customers who so request to their distribution system operator.

The planned budgets concern the granting of premiums for the installation of 37 500 meters at autoproducer household customers and 75 000 meters for other household customers.

Secondly, the deployment of **communicating meters** will be accelerated. It aims to achieve a full deployment by 31 December 2029 while maintaining the right to a free individual choice of the activation of the communicator function.

In view of the deployment of communicating meters, two-tier information must be established.

- General communication for the general public:

In order to allow customers to take good acceptance and ownership of the communicating meter and to enable them to make full use of their capabilities, an information campaign will be carried out to inform them about the costs and benefits, the potential for services (e.g. flexibility) and the 'extended' functionalities (e.g. the possibility of monitoring their consumption via smart application, interface to an energy management system, recommendations for more rational use, etc.). This information campaign will thus be coupled with the information campaign on new premiums for the installation of communicating meters and for the purchase of equipment for measuring and piloting installations.

- Individual communication when the smart meter is placed:

Given the importance of full information to final customers and in order to enable them to take proper ownership of this new tool, it is important that they receive appropriate advice when installing the meter, in particular on all the possibilities that the latter offer in terms of displaying and monitoring energy consumption. Particular attention will be paid to supporting households in activating pre-payment in vulnerable households.

In addition, particular attention will be paid to ensure comprehensive and informed information to households when the pre-payment function is activated.

To develop demand response and dynamic pricing. A decree regulating flexibility on the distribution network and related stakeholders was adopted by the Walloon Parliament on 19 July 2018 and slightly adapted in May 2022 to ensure full compliance with Directive (EU) 2019/944.

In implementation of that decree, an order on the licence for the provision of flexibility services was adopted by the Government on 28 March 2019 and the technical regulation on electricity distribution networks was revised on 27 May 2021.

Moreover, thanks to the deployment of communicative meters and in accordance with Directive 2019/944, a dynamic pricing contract must be offered by any supplier with a customer base of at least 200.000 customers at national level. However, this obligation will only be effective when the technical set-up is

operational. This new pricing requires an adaptation of the DSOs' computer systems (Atrias, MIG), as currently only two timetables can be implemented.

Since pre-contractual information is particularly important in this context, a new public service obligation was introduced for suppliers in order to ensure that final customers are fully informed of the opportunities, costs and risks associated with such a contract and of the need to install a communicating meter. It is also specified that the explicit written consent of the final customer is required before making a change to a dynamic pricing contract.

This dynamic pricing, linked to spot market prices, will develop flexibility through demand response.

For other flexible solutions implemented, reference is made *above*.

In parallel with the deployment of individual communicators, collective approaches will be considered to take account of the realities of households' lives (e.g.: consumption in energy communities; adaptation of consumption at company level, etc.). This goes hand in hand with the development of gendered indicators and the carrying out of qualitative studies, which are also planned.

758	Support approaches adapting consumption displacement processes to the realities of households and incorporating a collective approach	New	

- iii. Where appropriate, measures to ensure the non-discriminatory participation of renewable energy, demand response and storage, including through aggregation, in all energy markets.*

Federal State

Reply to the request

As members of the Pentilateral Energy Forum (PLEF), Belgium and Penta members can benefit from the efforts and experiences of the other Penta members on Demand Side Response (DSR). The volumes of RSP over certain periods and markets that can already be observed in a number of Penta countries (e.g. France and Belgium) show that if sufficient barriers and barriers are removed and participation in the RSP is actively encouraged, the flexibility of the RSP is provided and contributes to the stability of the system. The aim is now to build on these *lessons* and extend the RSD's participation to all timeframes and markets in all Penta countries, in line with the Clean Energy for All Europeans package, for the benefit of all consumers, based on the market.

Hydrogen policy

According to the decision of the Federal Government of 18 March 2022:

"The extension of Doel 4 and Tihange 3 must be combined with the provision of sufficient flexibility in the system to prevent nuclear power plants from pushing the production of renewable electricity out of the market. The production of renewable electricity cannot foreclose them from the market. This will include examining whether the capacity of Doel 4 and/or Tihange 3 in case of overproduction is sufficient. Tihange 3 in case of overproduction can be temporarily and partially used to further stimulate the hydrogen market in Belgium".

Support the use of renewable hydrogen (as part of the Hydrogen Bank or H2 Global) in the first years.

The market starts where there is a takeover. The Federal Government considers that if there were to be support, guarantees or quotas, they would aim to support (on the one hand) sustainable forms of production and (on the other) the use of the most appropriate vehicle in the appropriate sector, taking into account the implementation of the “Energy efficiency first” principle. Moreover, in order not to unduly disrupt the design of the different energy markets, it seems appropriate to limit these measures in time.

With the creation of a European market for H₂^{molecules}, European consumers of H₂ gain importance in international trade and have access to cheaper molecules. The Federal Government therefore welcomes the initiatives of the European Commission in this regard, and in particular the initiatives around the Hydrogen Bank and the Europeanisation of the German H₂^{Global} initiative. Both initiatives strengthen Europe’s position as an importer of renewable hydrogen in the emerging global market. Their European character also supports the Belgian strategy, since Belgium will be able to position itself as an entry point for these molecules on the Belgian and central and western European markets.

More specifically, the Federal Government undertakes to contribute to the development of the mechanism by supporting the development of the import infrastructure, on the one hand, and the development of a regulated transport network for national transport and transit, on the other. Both initiatives contribute to making Belgium an import and transit centre, as foreseen in the Federal Hydrogen Strategy, and are a major asset in attracting import flows.

In addition, the federal government supports innovative technologies through a temporary investment deduction scheme.

Flemish Region

System operators, as part of their network operation activities, must act as neutral market facilitators by purchasing the energy they use to cover energy losses and by providing non-frequency ancillary services in their system, in accordance with transparent, non-discriminatory and market-based procedures (Article 4 (1.6 12) of the Energy Decree). In addition, it is also stipulated that any natural or legal person providing flexibility or aggregation services to the applicant for flexibility, may become a provider of flexibility services or aggregators and may access, in a non-discriminatory manner, the electricity market or the local congestion market in order to provide flexibility or aggregation services, without the authorisation of other market participants.

- iv. Policies and measures to protect consumers, in particular vulnerable consumers and, where appropriate, energy poor consumers, and to improve competitiveness and competitive pressure on the energy market.*

Federal State

On 16 September 2022, the Federal Government decided to prolong the existing measures to support the increase in energy bills and to introduce new support measures.

New measures:

- Basic energy flat rate for gas (EUR 270) and basic flat rate for electricity (EUR 122).
- Grant of a premium of EUR 250 for persons heating in bulk. The government announced a pellets for the winter of 2022-2023 for people who are heating mainly

with this fuel.

Extensions:

The Law on the reform of the federal energy bill tax was approved by the Federal Government on 28 October 2022 and at 2nd reading on 6 February 2023.

If, before its entry into force, wholesale prices exceed the level of the price protection mechanism (EUR 100/MWh (TTF) for gas and/or EUR 250/MWh for electricity), the terms of this entry into force will be reassessed.

“Excise reform is a flexible policy instrument that can be used to support the energy transition. To this end, finance and energy ministers will be tasked with commissioning an annual review of the relationship between the cost of heating buildings and domestic hot water using renewable energy sources such as heat pumps and solar boilers on the one hand and fossil energy sources (natural gas, heating oil, propane, coal) on the other. To this end, the relevant ministers will also meet with the regions. On the basis of this development, a proposal to adjust the excise duty rates for these products will be presented, with the aim that after the entry into force of the current reform and over a period of up to 10 years, part of the excise duty on electricity will be gradually transferred to excise duty on fossil energy sources. Work will start soon and the relevant ministers are mandated to submit a proposal to the government by the end of March 2023 at the latest.

The Minister of Finance will have to ensure that the excise reform does not affect the recovery of VAT for self-employed persons.

In order to structurally protect households' purchasing power and to better manage structurally the effects of fluctuations in electricity and natural gas prices, federal taxation on energy bills is being reformed. VAT on supplies of natural gas, electricity and heat via district heating networks under residential contracts will be permanently reduced to 6 %, coupled with a reform of excise duties on these products, setting the excise duty rate for natural gas and electricity on the basis of 2021 prices.

The advantage of this reform is that excise duties are not proportional to the selling price and therefore constitute a factor in stabilising the selling price.

In addition, a ratchet system (price protection mechanism) is introduced, which aims to compensate automatically in excise duties for the 'VAT gain' that would result from fluctuations in market prices, so that price fluctuations are better controlled:

- The extension of the social tariff was also extended in the meantime by the Federal Government on 17 February 2023 until 30 June 2023 and abolished with effect from 1 July 2023 for persons entitled to an increased allowance.
- Increase of the existing one-off premium to EUR 300 for households heating with heating fuel oil or propane. It will also be extended until the end of March 2023.
- Extension of the temporary reduction of excise duties on diesel and petrol by EUR 0,175 per litre until 31 March 2023.
- Extension of the social tariff (to persons entitled to an increased allowance) until 31 March 2023.
- Temporary reduction of VAT on gas and heating for co-owners (e.g. apartments, campsites, retirement homes, etc.).

- Reduction of excise duties on gas and electricity for businesses and self-employed persons until 31 March 2023.

On 18 June 2022, the Restricted Council of Ministers (Kern) reached an additional agreement on the extension of existing measures to support the increase in energy bills:

- Extension of the temporary reduction of VAT on electricity to 6 % until 31 December 2022.
Extension of the temporary VAT reduction for gas and heat to 6 % until 31 December 2022
- Increase of the allocation to EUR 225 for households heating with bulk heating oil or propane.
- The extension of the temporary reduction of excise duties on diesel and petrol by EUR 0,175 per litre until 31 December 2022.
- Extension of the social rate (to persons entitled to an increased allowance) until 31 December 2022.
- Temporary reduction of VAT on gas and heating for co-owners (e.g. apartments, campsites, retirement homes, etc.).

On 14 March 2022, the Restricted Council of Ministers (Kern) reached agreement on a new package of measures to better protect Belgian households from price volatility in the energy market:

- Extension of the temporary [reduction of VAT on electricity](#) to 6 % until 30 September 2022.
- [Temporary reduction of VAT on gas and heat](#) to 6 % from 1 April to 30 September 2022.
- [A premium of EUR 200 is granted for households heating with heating fuel oil or propane.](#)
- Temporary reduction of excise duties on diesel and petrol by EUR 0,175 per litre from 16 March to 30 September 2022 and entry into force of the “click system” as soon as the price at the pump falls to EUR 1,70 per litre.
- Extension of the social tariff (to persons entitled to an increased allowance) until 30 September 2022.

In October 2021 and January 2022, in light of rising energy prices, the federal government took measures to alleviate households’ energy bills:

- [Temporary reduction of VAT on electricity to 6 %](#) from 1 March to June 2022;
- Granting a net heating [premium of EUR 100 to all contract holders](#) electricity for their place of residence;
- Extension of the social tariff to persons in receipt of increased allowances (BVT status);
- [Allocation of the single lump sum of EUR 80](#) to help the most vulnerable families;
- [Reduced VAT on solar photovoltaic panels, solar thermal panels, solar water heaters and heat pumps.](#)

v. Description of measures to enable and develop demand response, including tariff

measures to support dynamic pricing.

Flemish Region

In order to improve acceptance of the response to demand on the electricity market, the Flemish Government has approved a **2025 Flexibility Plan** containing 20 concrete actions to this end. As regards dynamic pricing in particular, suppliers with more than 200 000 pick-up points in the Flemish Region will be obliged to offer a dynamic pricing contract and inform their customers accordingly.

3.4.4. Energy poverty

I. Where appropriate, policies and measures to achieve the objectives of Section 2.4.4.

Federal State

The federal government is only responsible for pricing policy with regard to energy poverty.

- **Flagship actions**

To date, no federal plan to combat energy poverty has been drawn up. This was the intention in line with the intergovernmental energy pact approved by the federal government in 2017, among others, but as this is mainly a regional competence, there has not yet been any follow-up at federal level.

For federal actions on social tariff, gas and electricity fund, social heating fund, staggered payment and Osez Comparer campaign, see 2.4.4.

Flemish Region

In 2021, as a follow-up to the 2016 Energy Poverty Programme, a first **plan to tackle energy poverty 2025** 326 was developed. The plan puts even more emphasis on **preventive actions** that ensure the improvement of the energy efficiency of housing as a structural measure to prevent energy poverty. In addition, **curative actions** ensure that when households accumulate energy debts, assistance can be provided in time to avoid outage.

The Energy Poverty Plan 2025 is an evolving action plan to which, throughout the implementation period, implemented actions will be abandoned and new actions will be added, if necessary to achieve current or future updated policy objectives. Further development of actions will be done in collaboration with relevant stakeholders.

Preventive actions to improve the energy efficiency of housing

The proportion of households living in poor or very poor housing is overrepresented in lower-income households. The energy performance of a dwelling largely determines the energy consumption of a household. Energy-intensive houses need much more heating to achieve minimum living comfort. In many

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cases, (complementary) heating is provided by electric radiators, which are very expensive and inefficient in terms of consumption. Conversely, low-income families may also heat very little to reduce energy costs, thus finding themselves in a humiliating situation where they cannot meet their basic needs. Improving the energy performance of all Flemish dwellings is also essential to achieve the climate objectives set. In addition, these investments improve indoor air quality, comfort of life and health. As it is mainly the households of the lowest income groups that live in the most degraded dwellings, renovation of these houses is at the same time an adaptation measure to protect the most vulnerable target groups from the effects of climate change.

A comprehensive set of normative, support and relief tools for housing renovation has been developed, which is described in Chapter II – Decarbonisation.

- **Mijn VerbouwPremie**, the housing and energy premium, now depends on the income of private owner-occupiers, with the lowest income category receiving the highest premium. Owners renting to a social property agency are also entitled to the highest premium. The establishment of a one-stop-shop also allows citizens to apply for all renovation grants through a single channel.
- Since 1 September 2022, the 0 % energy loan has been transformed into **Mijn VerbouwLening**. **Mijn VerbouwLening** was extended in terms of target group, maximum loan amount (from EUR 15 000 up to EUR 60 000) and duration (from 10 to 25 years maximum).
- In the course of 2022, it was decided to end several relief routes, including the Huur- in isolatiepremie (HIP – rental and insulation premium), the type 2 monitoring analysis (OS Type 2) focusing on energy-saving works and the neighbourhood bonus, as autonomous measures, and to replace them with an enhanced, integrated and centralised support in energy houses: **Mijn Verbouwbegeleiding**. The basic principle is that this support is even more intensive in the light of low incomes.
- On 5 November 2021, as part of the additional climate measures, it was decided to introduce **in the Flemish Housing Code a pathway to tighten the minimum CPE** required for residential dwellings.
- In the context of the Ukrainian crisis, the Flemish Government decided, on 1 October 2022, to freeze the rents of the most energy-intensive houses (CPE E and F label) for one year and to limit the indexation of medium-performing houses (CPE D label) to 50 %. Subsequently, indexing becomes possible again, but according to a modified formula.

The '**Noodkoopfonds**' (Emergency Purchase Fund) was created for owners of poor quality dwellings who, on the one hand, do not have sufficient own funds to make the necessary investments and, on the other hand, are not eligible for renovation or urban renewal subsidies due to their lack of creditworthiness. The CPAS can subscribe to this fund to obtain an interest-free credit line in order to provide a final loan to a buyer in an emergency situation. Three calls for projects have already been launched between 2020 and 2022. During each call for projects, optimisations were made to the measure on the basis of input from different stakeholders. During the last call for projects, the renovation budget per house was increased to EUR 50 000 and a support fee of EUR 3 000 was foreseen for the participating CPAS. In order to reduce the workload of the CPAS, as of 2023, they will no longer use an administratively cumbersome call system, but rather the first-come, first-served principle.

With a **free energy scan**, owners and tenants from vulnerable target groups can bring a consultant to their homes, who will work with them to find ways to save energy. Occupants are given energy saving advice that can be applied immediately. If necessary, the energy advisor shall place energy-efficient materials free of charge (shower or energy-saving light bulbs, reflective sheets for radiator, insulation of the piping, plug against air flow). The occupant receives a report containing advice on energy and other savings opportunities. After the basic energy scan, it is possible to carry out a monitoring scan that focuses more on

small or large energy interventions or on the choice of the most advantageous energy contract. This type of scan will disappear as a stand-alone measure from 2024 and will be replaced by **Mijn Verbouwbegeleiding's support offer**. From 2024 onwards, the remaining scans will be subject to eligibility conditions based partly on income and partly on pre-determined vulnerable target groups.

Families belonging to certain target groups can benefit from a **EUR 250 discount voucher 327** for the **purchase of energy-efficient household appliances**. On the basis that, even with this intervention, energy-efficient appliances often remain too expensive for purchase, it was also decided in 2022 to grant this intervention, subject to certain conditions, also in the context of the leasing of those appliances. From 2024, the conditions for granting these measures will be changed from statutory to income conditions.

In addition, the target group of customers entitled to such a discount voucher is broadened. Indeed, an UGent study commissioned by VEKA has shown that a group of very small consumers (with consumption up to 900 kWh on an annual basis) will pay more under a capacity tariff than under a net kWh tariff. Thus, from 1 January 2024 to 31 December 2026, for that target group, a reduction voucher for the purchase of certain energy-efficient household appliances makes it possible to compensate for this increase in the net rate.

Curative actions relating to energy debts

Households facing one or more forms of energy poverty risk accumulating energy debt³²⁸. However, people who accumulate energy debts in Flanders are not immediately cut off from the energy supply. The Flemish protection of energy consumers against energy cuts is one of the best performers in Europe.

Additional curative measures have been taken under the 2025 Energy Poverty Plan to further optimise the procedure for protection against disconnection. The most important ones are listed below:

- The deployment of the digital meter since 2019 offers new opportunities to detect and address budgetary slippages in a timely manner. In 2022, the rules were amended to better respond to these opportunities. The main changes concern **the faster activation of the pre-payment function embedded in the digital meter and the better use of the data provided by the digital meter** to speed up the activation of the assistance and facilitate a faster return to a low-cost contract in the commercial market.
- In addition, continuous efforts are being made to encourage suppliers to agree realistic reimbursement plans with their customers. Following the energy crisis, the VREG has reshaped **its best practices on payment plans** in 329 order to adapt them to the current context.
- Since November 2022, electricity customers of the system operator who have electric heating in advance and who benefit from the exclusive night tariff between 1 November and 31 March may **request the CPAS to intervene for a minimum amount of electricity** if they do not have sufficient resources to heat their homes, as was the case in the past for natural gas.
- In the context of the revision of the optimised public service obligations since July 2022, the possibility of commercial pre-payment will be explored, in particular as a more advantageous alternative to the termination of a commercial supply contract followed by delivery by the Network Manager at the standard rate of the Network Manager. Another advantage is that commercial pre-payment households can share energy, which is not possible if they are supplied by the system

327 <https://www.vlaanderen.be/kortingsbon-voor-beschermde-afnemers-voor-een-energiezuinige-koelkast-wasmachine-diepvriezer-of-droogkast>

The³²⁸ figures for energy debt in Flanders can be found in the annual social report of the VREG.

329 In August 2014, the VREG published a Communication on best practices in payment plans for commercial suppliers. This document is a complement to the Energy Decree and Decision. It contains a number of recommendations to commercial suppliers concerning the establishment of repayment plans for customers who accumulate debts with them. Communication – best practices – payment plans

operator.

Additional measures in the winter of 2022-2023

On 30 September 2022, the Flemish Government approved a series of additional measures to mitigate the impact of extremely high energy prices on households.³³⁰

Region Walloon

The Walloon Government has committed itself, through various processes, to reducing energy poverty, in particular with the 2020-2024 exit plan and the Wallonia recovery plan. Although the two Plans have different substantive objectives, the measures used to achieve the defined objectives require better consideration of the energy transition while taking into account energy poverty.

The Government therefore attaches great importance to the fact that energy remains affordable. The energy transition is indispensable, but it cannot be at the expense of citizens. It must not increase inequalities and must ensure that it is accessible to all and does not harm households who cannot or do not want to use complex instruments such as dynamic tariffs or flexibility in their consumption.

In the Walloon Region, various mechanisms are put in place to improve access to energy and help households in energy poverty: awareness raising, Mebar programme, etc. In the future, these measures will be stepped up in accordance with the Walloon 2020 plan for lifting people out of poverty, which provides for the optimisation of the various energy support systems for vulnerable people (MEBAR, PAPE, network of stakeholders on the ground, energy mentors, etc.).

The necessary energy transition must also be accompanied by increased access to energy for citizens. It must contribute to reducing inequalities, particularly gender inequalities, be accessible to all and not harm households who cannot or do not want to use instruments such as dynamic tariffs or flexibility in their consumption. This attention is reflected in particular in several concrete actions under the 2020-2024 Poverty Recovery Plan and Wallonia's Recovery Plan. In connection with the energy market dimension of the EU Governance Regulation, and the related objectives, the PACE's actions aim to complement these provisions in order to ensure access to energy for all, to ensure fair energy sharing and to improve the energy performance of housing.

Ensure the supply of sufficient energy at an acceptable price to all households

There are several factors affecting households' access to energy: their income, **energy prices**, and the level of energy efficiency of their homes. Income issues fall outside the scope of the PACE. Support for improving energy efficiency is discussed in Chapter 3.4. While the majority of the elements of competence in the field of pricing is a federal competence, the Region has policy levers by setting markers for the establishment of the tariff methodology by the CwaPE, integrating regional charges on the invoice or taking into account the specific difficulties encountered by households under pre-payment.

In addition to these elements, the following actions aim to continuously monitor and evaluate the implementation of the legislation on **public service obligations**. They contribute to the achievement of the objective of access to energy in general, by monitoring compliance with the protection procedures put in place, in particular in the context of non-payment procedures.

- Implement changes to the mechanisms for accessing protected customer status identified following the assessment of the cyclical protected customer scheme, so as to support access to

³³⁰Decisions of the Flemish Government | Vlaanderen.be

energy for households with limited income

311	Carry out an assessment of the status of cyclical protected customer at the end of its period of effectiveness, with a view to ○ clarify the reasons for not making use of the right of identified beneficiaries; ○ identify the strengths and weaknesses of the mechanism; ○ identify the changes that may be made to the scheme if it were to be reconsidered in a crisis context; ○ identify ways to improve the use of regional protected customer status in general.	Ongoing	PwEC/Poverty exit plan

Within the framework of the organisation of the gas and electricity markets resulting from the European directives, the Federal State and the Regions have introduced specific mechanisms to help vulnerable households. These households are referred to as “protected customers”.

There are two categories of protected customers:

- On the one hand, federal protected customers³³¹ who benefit from the social tariff from any supplier of household customers.
- On the other hand, regional protected customers³³² who benefit from the social tariff from their DSO when provided by their network operator, which then acts as a social provider.

Protected customers benefit from the social tariff established quarterly by CREG on the basis of the most advantageous commercial offer (among the suppliers) and the lowest distribution network tariff.

The Walloon Region has extended the concept of protected customers, defined by the Federal State, to take account of other problematic situations of precarious households.

Regional protected customers include beneficiaries (either the person holding the supply contract or a person with the same domicile as the contract holder):

- an educational guidance decision of a financial nature to the CPAS.
- mediation of debts with a CPAS or an approved debt mediation centre.
- collective debt settlement.

In order to benefit from the social tariff, the protected customer in the regional sense must turn to his supplier, who is responsible for transferring it to the distribution system operator to which he is connected. The network operator then acts as the social supplier of the protected customer.

In addition to the application of the social tariff, this status also makes it possible to benefit from additional protection measures where those customers are under budget or smart metering with pre-payment. They thus have the opportunity to request winter gas assistance or, at the request of the CPAS, to benefit from the guaranteed minimum electricity supply.

³³¹<https://www.energieinforwallonie.be/upload/documents/tableau-de-synthese-clients-proteges.pdf>

³³²<https://www.energieinforwallonie.be/fr/mesures-sociales/le-client-protege#quels-avantages-pour-le-client-protege>

³³²<https://www.energieinforwallonie.be/fr/mesures-sociales/le-client-protege#quels-avantages-pour-le-client-protege>

In Wallonia, there is an increase in the number of protected customers, as can be seen from the figures below.

• Evolution of the number of protected customers and the social tariff³³³

ELECTRIISCED	02.2013				02.2021			
	BE	VL	BR	WAL	BE	VL	BR	WAL
Number of social clients (clients protected)	394.877	196.076	55.509	143.292	488.050	229.711	64.630	193.979
Number of federal social customers	384.376	196.076	52.681	135.619	470.305	229.711	62.175	178.419
Number of regional social customers (DSOs)	10.501	0	2.828	7.673	17.745	0	2185	10.391
Share of social customers/total number of household customers (%)	8.25	7.11	10.75	9.47	10,02	— 8,41	12.74	11,90
Social tariff (all in cEUR/kWh)	16.76	16.74	16.72	16.83	20.20	21.06	17.37	22.16

Table 4: Evolution of the number of protected customers and the social tariff Electricity

³³³ data from CREG monthly dashboards (February 2013 and 2021)

GAS	02.2013				02.2021			
	BE	VL	BR	WAL	BE	VL	BR	WAL
Number of social clients (clients protected)	225.883	115.948	44.785	65.150	306.571	155.728	47.653	103.170
Number of federal social customers	218.510	115.948	39.859	62.713	295.937	155.728	45.911	94928
Number of regional social customers (DSOs)	7.383	0	4.926	2.247	10.634	0	1.762	8.872
Share of social customers/total number of household customers (%)	8.46	6.76	12.14	11.07	10.95	8.99	13.13	13.90
Social tariff (all in cEUR/kWh)	4.46	4.46	4.46	4.47	3.89	3.47	3.84	4.37

Table 5: Evolution of the number of protected customers and the social gas tariff

In addition, following the COVID-19 health crisis, the Walloon Region created, by Government Decree of 24 September 2020, the category of 'cyclical' protected customers to grant temporary aid (status granted for a period of one year) to persons experiencing difficulties in paying their energy bills and at the same time experiencing a precarious situation. This aid was renewed in 2021 by the Order of 1 April and was again extended by the Government on 3 February 2022 in order to extend its effects until 31 August 2022 and to extend the categories of beneficiaries to include households affected by the floods of July 2021. In addition, the measure was extended through the Electricity Decree until 31 August 2023.

An assessment of the status of cyclical protected customer, both quantitatively and qualitatively at the end of its period of effectiveness, will be carried out in order to clarify the reasons for not making use of the right of the identified beneficiaries, to identify the strengths and weaknesses of the mechanism, the possible changes to the scheme if it were to be reconsidered in a crisis context and ways of improving the use of regional protected customer status in general.

The CWaPE was tasked with this evaluation in the first half of 2022 and the conclusions were issued in October 2022.

The implementation of possible new provisions could, on the basis of the evaluation, be accompanied by information measures for beneficiaries and front-line actors to increase the use of household rights.

Analyse the effects of the next tariff methodology to assess its impact on energy access and confirm the absence of deadweight effects and a positive effect for all Walloon households

313	Analyse the effects of the next pricing methodology to assess: ○ the impact on access to energy, with particular attention to households in energy poverty; ○ The situation of self-consumers; ○ possible deadweight effects and the positive effect for all Walloon households: ○ the impact on investment policies of the DSOs to cope with the transition.	New	

The aim of this action is not to disadvantage consumers who, by necessity or choice, have low energy consumption or do not have the possibility or desire to contribute to demand flexibility.

The Decree of 19 January 2017 has been adapted (adopted by Parliament on 4 May 2022) to amend the political guidelines which will serve as the basis for the new tariff methodology 2024-2028 that CWaPE will propose in the coming months, within its exclusive competence in this area. On the basis of the Regional Policy Declaration, an order of priority has been incorporated into the general principles laid down in Article 4 (2) of the Tariff Decree, and new objectives have been set, such as:

- Preservation of access to energy for all.
- Energy transition and integration of renewable at least cost.
- Reception of new efficient electrical uses (active participation of network users).

The purpose of this action is to identify and analyse the effects of the new tariff methodology at the end of its period of application (i.e. 2029) and to assess its impact on access to energy for households, confirm the absence of deadweight effects and the possible positive effect for all households in Wallonia.

It should also be noted that, to a large extent, the Plan will have a significant impact on distribution networks (electric mobility, decentralised and intermittent renewable energy, heat pump, decarbonised molecule, etc.), which will require large-scale investment by distribution network managers (DSOs) in their networks (asset intensive) in order to be able to accommodate these new modes of energy production and consumption. It is therefore essential that the Walloon legal framework and successive pricing methodologies support this ten-year investment policy leading to a decarbonised society by 2050. Indeed, the distribution networks have not been dimensioned for these new uses, which 618

they did not exist 15 years ago. It is therefore essential to modernise and strengthen these networks in order to enable them to accommodate all these new uses and to be a driver of the energy transition.

Implement the measures identified as relevant on the basis of stakeholder proposals in order to implement a universal energy service and ensure access to a vital free tranche of electricity for all Walloon households

310	Analyse the possibility of implementing a universal energy service for Walloon households. This will be achieved through stakeholder consultation, a summary of what a universal energy service could be and funding opportunities.	Ongoing	Exit from poverty plan

This will be achieved through a consultation of stakeholders, the drafting of a position paper on the concept of universal energy service and its financing possibilities.

A universal service would be to guarantee at least a basic energy service. However, in order to identify this concept more precisely and its principles, a broad stakeholder consultation was carried out in the first half of 2022. By 31 March 2022, several stakeholders were expected to issue an opinion on the possibility of introducing a universal energy service. CWaPE, GRD RESA, AIEG and Test-Achat, Rwade and FEBEG have issued their opinions which are currently being analysed.

The analysis of the various contributions will make it possible to identify measures that can be implemented quickly, as well as measures requiring further steps, such as a feasibility study. Based on the results of the feasibility study, the regulation could be adapted.

Encouraging monitoring of consumption

- Monitor the implementation of the reform of the non-payment procedures, which provides for access to justice of the peace before any cuts, and assess its impact on the effectiveness of household rights, and put in place the necessary protection mechanisms to ensure that no pre-paid household is subject to self-cuts, ensuring that these mechanisms are automated as far as possible to reduce non-recourse

316	Monitor the implementation of the reform of the non-payment procedures, which provides for access to justice of the peace before any cuts, and assess its impact on the effectiveness of household rights	Ongoing	PWEC

Budget-based meters are identified as a tool to manage household debt, but do not support households in any way in the structural reduction of their consumption by improving their housing or equipment. Moreover, the technical elements available to DSOs do not provide a reliable picture of the situation on the ground in terms of power or gas supply disruptions experienced by households.

This follows the CWAPE's assessment of the operation of budget-based meters in 2017 on the basis, in particular, of a question of the households equipped with them. This study highlighted the fact that the budget-based meter is not a tool to guarantee access to energy, but rather a tool for managing the budget. These meters are being replaced by the deployment of communicators with a pre-payment function. These can be recharged remotely (transfer, application) are less stigmatising for the customers concerned and allow efficient monitoring of consumption and the balance available via a computerised platform.

In the light of this assessment, but also of the difficulties that emerged during the COVID-19 crisis, the

Walloon plan to combat poverty for 2020-2024 provides for a review of the system of budget-based meters.

By decree of 16 February 2022, the Walloon Parliament amended the Electricity Decree in order to review the procedure for non-payment, which required the systematic placing of a budget-based meter. The purpose of this decree is to require the decision of a justice of the peace before any cut in the supply of electricity and to abolish the system of budgeted meters, while at the same time allowing the justice of the peace to require the placement of a meter communicating with a pre-payment option.

The aim of this new mechanism is to enable every citizen, when access to energy is at risk, to benefit from the right to an adversarial debate, a decision by an impartial and independent authority and an effective remedy.

This decree introduces a new reporting obligation to the CWaPE as part of its annual report sent to the Walloon Government and Parliament. The CWaPE will have to draft a report on the proceedings before the Justice of the Peace in the context of non-payment.

The purpose of this report is to identify the number of cases, the average processing time, the suppliers concerned, the outcome of the judgments concerned and the amounts of the unpaid payment for which the procedure was initiated. Strengthening citizens' energy information tools

Various tools have been put in place to raise awareness and support for vulnerable people: preventive Action Plans for Energy (PAPE), energy mentors and training of social workers.

Support for households by first and second line actors is essential to ensure the use of household rights. The resources allocated to these structures will be adapted to territorial or contextual needs.

- Continue to support and coordinate grassroots actors accompanying households in energy poverty, including the information point, following the evaluation of the Preventive Action Plans for Energy (PAPE) and the finalisation of the mapping of actors on the ground

761	Adapt support schemes for existing households (energy tutors, Elw, SRME, 1718, etc.) to meet local needs (e.g. lack of actors) and/or context (e.g. floods), with a view to strengthening complementarity and ensuring that resources are pooled where possible.	Ongoing	

In the context of PAPE, the CPAS have the task of informing the public about the rational use of energy and the control of consumption (reduction of consumption and therefore of bills) and of existing aid and premiums in this area. The actions of the PAPE also provide for the implementation of individualised monitoring in three stages: the household's energy balance, identifying possible solutions and assisting the household in their implementation. This individualised follow-up is carried out by social workers trained in the field, energy tutors or specialised associations.

The actions of the CPAS in this context relate to the individualised monitoring of households with or without the benefit of the CPAS. In addition, information and awareness-raising sessions for this target audience are also organised.

For 2019-2020, 134 PAPE received a subsidy totalling EUR 2.739.811. For 2020-2021, 71 PAPE received an overall subsidy of EUR 1.251.763,27. For 2021-2022, 138 PAPE receives a subsidy for an overall amount of EUR 2.792.640,98. For 2022-2023, 79 PAPE applied for a subsidy totalling EUR 1.511.334,29. These are in the process of being committed.

Under PAPE, more than 15.000 households receive an individual intervention each year. In addition, almost 6.000 households benefit from home tracking enabling support to reduce their consumption/bill.

Energy tutors carry out actions around 9 main axes, namely:

- Save a diagnosis, explain it, make recommendations, relay and empower beneficiaries.
- Accompanying vulnerable audiences in their efforts to carry out small or major energy-saving work. This involves visiting users.
- Achieve awareness of the Rational Use of Energy (ERUs).
- Inform the CPAS public. The aim is to provide information that is consistent with the work of the social service.
- Explain the results of the energy audit if it may have taken place.
- Negotiate with the owners.
- Inform existing arrangements and administrative processes.
- Making the situation of people visible and legible (its tenants and ends) and analyse the situation from a technical, administrative and behavioural point of view with all those involved.
- Participate in the sustainable management of the institution, i.e. raise awareness among all within the institution/reflect and induce changes in attitudes.

It is now necessary to continue the work by adapting the support measures for existing households (energy tutors, but also Elw, SRME, 1718, etc.) to meet local needs (e.g. lack of actors) and/or context (e.g. floods), with a view to strengthening complementarity and ensuring that resources are pooled where possible.

This work will start by carrying out a qualitative study on existing schemes (PAPE, MEBAR) identifying ways to improve and strengthen them, and by carrying out a mapping of the actors on the ground (associations or institutions) accompanying households to support their access to energy. It will also be necessary to identify with them ways of strengthening their respective actions in practice and ways of increasing networking.

- Organise an annual meeting of first and second line actors to optimise the handling of questions and complaints from household customers concerning the energy market

380	Organise an annual meeting of primary players (DSO, Suppliers, Elw, CPAS, 1718, etc.) and second line (SRME and federal ombudsman) to optimise the handling of questions and complaints from household customers concerning the energy market and adapt the legal framework where necessary.	New	—

Strengthening citizens' energy support tools

For people in precarious situations, different approaches to support them need to be explored, such as the feasibility of setting up a 'third-party paying' system, and/or prefinancing the works, so that the candidate for renovation does not have to advance the total amount of the works.

- Implementing and communicating on the reform and strengthening of the MEBAR support system, assessing the impact of the reform of the MEBAR system and identifying, where appropriate, further improvements

For low-income households, the MEBAR operation already allows access to a series of works on advantageous terms.

The Walloon Region grants a subsidy to low-income households for carrying out work in their homes that will enable them to use energy more efficiently (MEBAR premiums). This may include the replacement of external frames or doors, insulation work, the installation of a stove, the ducting of a chimney, the installation of a boiler or a water heater, etc.

The subsidy may also be granted to a household or applicant living in a caravan or chalet located in a campsite or residential park at weekends.

To obtain the grant, applicants must contact the CPAS of their municipality, which will initiate the procedure.

Since June 2022 and the reform of the mechanism, the bonus amounts to a maximum of EUR 2.000 TVAC for households whose resources are less than or equal to the amount of integration income plus 30 % (up from EUR 1.365 as a maximum subsidy until then, and an income ceiling of 120 % of social integration income). This amendment brings the annual amount reserved for the RW's general expenditure budget to EUR 6,5 million.

Monitoring is planned in order to evaluate the revised measure.

- Strengthen renovation support schemes, taking into account household income (increase in bonuses based on income, pre-financing, coaching, etc.), in particular with a view to supporting the implementation of renovation obligations

The Region also grants energy and housing premiums. These have been increased for people on low incomes to help them improve their housing in order to reduce their energy consumption. For example, for a household with an income of EUR 23.000 or less, the premium is multiplied by 6. The premiums shall be granted for the following investments: thermal insulation of the roof, thermal insulation of walls, thermal insulation of the ground, installation of efficient heating and/or hot water systems, performance of an energy audit.

In October 2022, the Walloon Government decided to increase the basic amounts of these premiums and the maximum ceiling for invoices that can be reimbursed (up to 90 % as against 70 % at present). As of 2023, this reform of housing premiums will be implemented. In the medium and long term, the items eligible for bonuses and the amounts of the premiums will be reviewed, increased or limited, depending on the needs of the energy and solidarity transition.

Set up a programme to support the renovation of dwellings identified as energy passoires for poor

owner-occupiers and make it sustainable

326	Set up a pilot programme to support the renovation of dwellings identified as energy passoires for landowners in poor situations.	Planned	PRW 53

Support should also be given in particular to the energy renovation of ‘energy passoires’ (buildings at level G or F EPB) whose owner-occupiers do not have access to credit due to an excessively low income. A pilot programme will be implemented, and other support or mechanisms may be put in place to improve the energy performance of F and G label buildings. Furthermore, human and information support will be strengthened or implemented to support precarious households in the transition. If necessary, full support mechanisms (full One Stop Shop, including for administrative aspects) will be put in place.

- Carry out quantitative and qualitative studies on energy poverty and access to energy

Gendered indicators and statistical data should be developed to refine the knowledge of consumer profiles and thus be able to analyse the impact of policies and/or crisis situations on citizens. Such studies would also make it possible to better guide the deployment of communicating meters, adapting it to the realities of households and their capacity to act. Qualitative studies should also be carried out on the subject of “control of consumption at home”, on the indirect impacts of increasing energy bills (for example: “who postpones care to pay the bill?”), as well as the problem of non-access to the law and the burden of stigmatisation in relation to the steps currently being taken to obtain help.

762	Carry out qualitative studies on ‘control of consumption at home’, on indirect impacts linked to the increase in energy bills (e.g.: “who postpones care to pay the bill?”), as well as the issue of lack of access to law and the burden of stigmatisation in relation to the steps to be taken to obtain assistance, taking into account the gender dimension.	New	
763	Develop specific indicators and statistics to refine the knowledge of consumer profiles, analyse the impact of policies and adapt them where necessary. This work will pay particular attention to compliance with the GDPR.	New	

Brussels Capital Region

Measures in the just transition part (3. Policies and Measures – Just Transition).

3.5. Dimension of research, innovation and competitiveness

Support and encourage research and development to promote the energy transition in particular in areas with the greatest climate impact, in particular renewable energy, energy network management and adaptation, sustainable mobility, agricultural production, the circular economy and all sectors directly seeking to reduce greenhouse gas emissions¹⁶. In addition to the development and dissemination of new technologies, it is essential to maintain and develop training profiles in order to create sustainable jobs linked to the energy transition and to maintain the necessary versatility of training profiles³³⁴.

1. Policies and measures related to the elements of point 2.5;

Federal State

Supporting scientific research and innovation

The following measures can stimulate innovation³³⁵:

- Tax support for the recruitment of researchers.
- Support to pilot projects.
- Promotion and support of innovative technologies.
- Campaigns to support the circular economy.
- Support for social innovation projects to change behaviour.
- SWOT analysis and regular update of the SET-Plan (Strategic Energy Technology Plan) to focus on areas where Belgium has added value.

Energy transition fund

Energy Transition Fund (FTE): support research, development and innovation on energy transition within federal competences.

- Existing/updated objective

The FTE aims to encourage and support research, development and innovation in the field of energy – within the framework of federal energy competences. In this context, the Directorate-General for Energy is organising an annual call for projects in accordance with Article 3 (1) of the Royal Decree of 9 May 2017 laying down the conditions for using the FTE.

In order to obtain support, projects must, inter alia, be linked to at least one of the following three thematic axes which fall within the competence of the Federal State:

- Thematic Axis 1: renewable energy sources in the Belgian exclusive economic zone of the North Sea and biofuels.
- Thematic Axis 2: nuclear energy applications.
- Thematic Axis 3: security of supply and grid balance.

Energy Pact Vision³³⁴ Paper: Belgian Interfederal Energy Pact: A common vision for the energy transition

³³⁵ Het Regeerakkoord, Federale overheid, 30 September 2020 https://www.belgium.be/sites/default/files/Regeerakkoord_2020.pdf

They must also prove that they have a significant impact on the Belgian energy sector.

- Flagship actions

An annual budget of EUR 25 million will be allocated to the Energy Transition Fund, which can be awarded in the form of grants to projects that fulfil all relevant conditions and concern research and development, investment in research infrastructure or innovation by SMEs.

The FTE's calls for projects are open to:

- Legal persons under Belgian law,
- Legal persons formed under the legislation of another Member State of the European Union, the United Kingdom and Norway.

- Operationalisation (implementation)

The Royal Decree of 9 May 2017³³⁶ lays down detailed rules for the use of the FTE.

You will find below a list of concrete implementation measures:

- Organisation/launch of an annual call for projects (no later than 15/11).
- Annual opinion with assessment of project proposals submitted (by 30/04).
- File to be submitted for approval for the Ministerial Council and the annual grant decisions (no later than 31/05).
- Annual Grant Agreements between the Minister and the beneficiary (ies).
- Annual launch meetings with the beneficiary (ies).
- Annual technical and financial monitoring meetings, evaluation reports and payment instalments.
- Annual State aid report under Regulation 651/2014 (GBER).
- Public communication of the results of the supported projects (continuous).
- Monitoring of the FTE's budget (continuous).

The FTE's calls for tenders are organised to spend the FTE's budget. In the FTE, an annual contribution is paid for the period from 2016 to 2025 (see below on ETF funding).

- Progress in implementation

The FTE has organised seven calls for projects since 2017:

- Call for projects I of June 2017
- Call for projects II of December 2017
- Call for Projects III of August 2018

³³⁶ Royal Decree laying down detailed rules for the use of the Energy Transition Fund, Economy, SMEs, SMEs and Energy, 15 May 2017.
<http://www.ejustice.just.fgov.be/eli/bsluit/2017/05/09/2017012094/justel>
<http://www.ejustice.just.fgov.be/eli/bsluit/2017/05/09/2017012094/justel>

- Call for projects IV of October 2019
- Call for Project V from November 2020
- Call for Project VI from November 2021
- Call for Project VII from November 2022

The first six calls made it possible to award grants to 84 projects for a total amount of EUR 128 million. These projects are closely monitored by experts from the Directorate-General for Energy (FPS Economy) and an external financial auditor (organisation of technical and financial audits). An overview of the 84 supported projects is ongoing and the public results of the finalised projects can be found on the webpage 337as well as on the public channels of the project partners.

A seventh call for projects was launched on 10 November 2022³³⁸. Following the agreement of the Federal Government, it was decided that the last call for projects launched on 10 November 2022 would again give priority to thematic axes 1 and 3 of the FTE. Projects under Thematic Axis 2 – Nuclear Energy Applications are eligible only to the extent and provided that the available budget is not allocated to project proposals under Thematic Axis 1 and 3. As part of the FTE’s last call for projects of November 2022, 71 proposals for innovative projects were notified on 14 December 2022 and 51 project proposals were finally submitted by the deadline of 23 January 2023. After a thorough assessment process by DG Energy, an external financial auditor as well as external international technical experts, DG Energy will deliver an opinion to the Minister of Energy by 30 April 2023. The Council of Ministers will decide on the allocation of the aid by the end of May 2023.

The next steps are:

- June 2023: award decisions signed by the King for the selected projects and formal communication and justification of the result to all applicants.
 - June-September 2023: conclusion of grant contracts for selected projects and signature by all parties.
 - September-November 2023: start of the projects selected under this call for proposals VII, the starting date of the projects may be 1^{September} 2023, 1^{October} 2023 or (at the latest) 1^{November} 2023 (at the discretion of the beneficiary), the organisation of kick-off meetings.
 - November 2023: launch of the next call for projects VIII (no later than 15 November 2023).
- Impact
 - Impact on greenhouse gases

For eligible projects, the designated experts of the Directorate-General for Energy will assess the extent to which the eligible project proposals meet the six award criteria, as described in point 3.3 of the call for projects. One of these six award criteria concerns “the positive impact on the climate and environment in Belgium and on federal energy transition policy” (this is the award criterion to which the highest weighting is also attributed). In this context, the candidate

Energy Transition337 Fund (FTE), DG Energy, March 2023.

<https://economie.fgov.be/sites/default/files/Files/Energy/Overzicht-gesubsidieerde-projecten-energietransitiefonds.pdf>

Energy Transition338 Fund: call for projects of November 2022 for a grant in 2023, 10 November 2022.

<https://economie.fgov.be/sites/default/files/Files/Energy/ETF-projectoproep-van-10-november-2022.pdf>

is expected to:

And a description, as precise as possible, of the positive impact of the project on the climate and the environment in Belgium, in terms of reducing greenhouse gas emissions (such as CO₂) and the transition to renewable energy. This impact should also be explained by quantitative indicators such as, for example, an indication of the number of tonnes of CO₂ saved, etc.

An explanation of how and how the project proposal can contribute to achieving the desired sustainable energy transition in Belgium and contribute concretely to the federal energy transition policy (including the transition to renewable energy).

- Other impacts foreseen by the measure

There will be more research, development and innovation in the context of supporting the energy transition within the framework of federal energy competences, with more concrete results for policymakers, as well as possible further commercialisation of innovative technologies and concrete investments that can add value to our country's energy transition.

Another possible effect is the emergence of more partnerships between governments, universities, research institutes, industrial partners, SMEs, etc. on research, development and innovation in the context of the energy transition (within the framework of federal energy competences), so that research can also be carried out more effectively in Belgium. In addition, cross-fertilisation and dissemination of concrete research results among all stakeholders involved in Belgium can be increased.

- Economic and social impact

For eligible projects, the designated experts of DG Energy will assess the extent to which the eligible project proposals meet the six award criteria, as described in section 3.3 of the call for projects. One of these six award criteria concerns "the positive impact on Belgium (economic and social) and on Belgium's energy security". For this award criterion, the extent to which project proposals, inter alia, initiate a significant diversification of energy sources or increase competitiveness in the energy market, maintain and/or promote employment, reduce network tariffs, charges and/or energy costs for consumers shall be assessed. It is also assessed whether the project proposal would also have a significant and positive impact on the security of Belgian energy supply and/or the balance of the network in the light of the FTE's purpose.

- Budget

The fund is financed by the fee paid to the Federal State in accordance with Article 4/2 of the Law of 31 January 2003 on the phasing out of nuclear energy for the industrial production of electricity.

In accordance with the "Convention on the extension of the operating life of Doel 1 and Doel 2", the operator of these units is required to transfer annually a lump sum of EUR 20.000.000 to the Belgian State, the first time on 15 April 2016 and the last time on 15 April 2025.

The Council of Ministers took the following decision on 1 December 2017 "The Council of Ministers agrees to increase the expenditure ceiling in 2018 and 2019 by EUR 10 million, bringing annual expenditure to EUR 30 million for this period. From 2020, the expenditure ceiling will be increased by EUR 5 million in addition to the EUR 20 million until reserves are exhausted."

An annual running cost of EUR 250 000 is foreseen, mainly for the recruitment of an external auditor to carry out financial and accounting evaluations of project proposals submitted (with a view to their possible selection) under a call for projects, as well as for the annual financial audits of ongoing and selected projects. The external independent international technical experts, who assist the FTE in the substantive technical evaluation of the project proposals submitted since 2022, are also reimbursed from the FTE's operating funds.

Federal Research Policy

Energy and climate research projects supported by federal research policy:

Name of project	Budget (<i>estimate</i>)	Duration
Holding ESA-PROBA-V	EUR 43,4 MILLION	EUR 31 million already spent

		EUR 12,4 million (2019) —)
ESA – development and operation of ALTIUS	EUR 152 MILLION	Launch at the end of 2023 or 2024 Holding from 2024 2027?
JPI Climate- SOLCTICE	EUR 500 million	2020
EUMETSAT	EUR 12 MILLION	2019/base annual
JPI Climat AXIS ERA-net	EUR 348 from the BRAIN- BE2.0 research programme + EUR 63 million EU top-up	2019
JPI Climate & JPI Oceans “ New Climate Science on Oceans ”.	EUR 500 million	2020
BiodivERsA BiodivClim	EUR 500 million	2020
IPCC Trust Fund	EUR 74 million	2019/base annual
Bilateral cooperation with the Vietnam	EUR 250 million	2019
ESFRI-RI ICOS	EUR 84 – membership fee	2019/base annual
	Support projects — ICOS IASB: EUR 83 million — ICOS Belgica: EUR 80 million	2019
	Procedure for the valuation of federal components in ESFRI RIs	From 2020 500 kEUR/4 years with component selected
ESFRI RI ACTRIS	EUR 1,2 million for a project to support the modernisation of federal infrastructure (IASB-BIRA & IRM-KMI) participating in ACTRIS	2018-2022
	Procedure for the valuation of federal components in ESFRI RIs	From 2020 500 kEUR/4 years with component selected
MYRRHA	EUR 287 million for the construction of phase 1	2019-2026
	EUR 114,9 million for R & D in support of phases 2 and 3	2019-2026

	EUR 156,7 million for the operation of phase 1 (in case phases 2 and 3 are delayed or not started)	2027-2038
JPI Climate – ERA4CS Co-fund ERA-net	EUR 417 000 from the BRAIN- BE research programme + EUR 73 000 additional EU support	2017-2020
BRAIN-BE2.0	To be determined with a maximum of EUR 29,4 million	2019-2023
Campaigns Antarctic BRAIN-be 2.0	Unknown. Depending on the topics of the call and selected projects	2018-2023
Centre Belgian from climate literacy	To be determined approximately 700 kEUR/year	2020/pluriannuel (if budget additional available)
Total		

Nuclear research

Belgium considers it a priority to maintain its knowledge and expertise in the nuclear field, and in particular in the field of responsible management of radioactive waste and spent fuel, gradually ensuring a high level of safety in their management and avoiding unnecessary burdens on future generations. In an international context, Belgium will continue the necessary research into innovative solutions for highly radioactive waste; this retention of skills should also ensure the continued production of radioisotopes in Belgium.

Belgium has decided to build a new major research infrastructure, MYRRHA (Multipurpose Hybrid Research Reactor for High Tech Applications), to remain a world-class R & D and innovation player in important areas such as:

1. Nuclear medicine and the production of medical radioisotopes.
2. Research for new materials, including for fusion reactors.
3. Research on particle accelerator technology.
4. Research into the transmutation of radioactive waste.

MYRRHA will become a pan-European nuclear research infrastructure. The Belgian Government has been financially supporting the project since 2010. The additional funding of EUR 558 million for the period 2019-2038 decided by the Belgian government on 7 September 2018 will be used, inter alia, to implement the first major part of MYRRHA. This concerns the construction on the SCK-CEN site of the first part of the particle accelerator and the irradiation stations, which will be put into operation in 2026. IVZW MYRRHA (International Non-Profit Association) was established in 2022 to attract foreign partners, a legal status adapted to major projects funded by several foreign states that will help finance the next phases of the MYRRHA project. This decision will strengthen the promotion of the MYRRHA project and its applications to foreign partners.

Belgium will continue to work on the development of nuclear fusion energy in cooperation with EURATOM and other Member States in the framework of the implementation of the European

Roadmap “Fusion Electricity – A roadmap to the realisation of fusion energy”.

Belgium will continue its R & D and innovation activities in the field of nuclear research and maintain and develop a high level of expertise. The focus will therefore be on research on small modular reactors. On 23 December 2021, the Federal Government decided to establish a long-term programme for research on small modular reactors, for which an annual amount of EUR 25 million has been made available for the next four years (2022-2024). To this end, a technological assessment has been carried out and a long-term research programme is being developed.

Competitiveness

- Objectives

Ensure that the different components of the cost of energy in Belgium are not higher than in neighbouring countries, in order to preserve the competitiveness of our (energy-intensive) companies and the purchasing power of households. This also takes into account the analysis of the industry’s position on the world market.

The government will take into account the competitiveness of the economy, in particular small and medium-sized enterprises, in order to ensure that they have sufficient access to low-carbon and zero-carbon energy at competitive prices compared to our direct neighbours. The government will also ensure that a framework is developed and put in place to enable companies to drastically reduce their greenhouse gas emissions.

- Flagship actions

- Energy standard*

- The energy standard scheme provides for an annual review by the regulator of the level of the various cost elements of electricity and natural gas bills and their comparison with those of Germany, the Netherlands, France and the United Kingdom. In addition, the King is responsible for determining, by decree on a proposal from the Commission, after consultation in the Council of Ministers, the categories of consumers, in terms of the type of economic activity and the amount of consumption, which will be used to prepare the study referred to in § 1. Lastly, that energy standard scheme provides that the regulator, after consulting the Gas and Electricity Advisory Council and the Central Business Council, is to issue an opinion to the Minister with recommendations for measures to safeguard the competitiveness of businesses and the purchasing power of consumers, which refer to the cost elements of the energy bill which fall within the federal competence in the field of energy.

The law of 28 February 2022 laying down various energy provisions aimed at introducing an energy standard for citizens and businesses in order to guarantee competitiveness and purchasing power in relation to our neighbouring countries. The aforementioned law implements the coalition agreement of 30 September 2020, which states:

- “— A complementary strategy is being developed for improving productivity in the long term. These procedures shall include:
- Amongst others, an energy standard will be introduced for businesses and consumers.’;
- “An affordable energy bill is essential for citizens and businesses. Prices are also subject to continuous

monitoring. In addition, an energy standard will be introduced for citizens and businesses. The cost of CRM on the energy bill, which will not enter into force until 2025, will be offset by a proportional reduction in the federal share of the bill. '

· "We control the energy bill of our households and our companies. We make sure that the federal share of the electricity bill decreases. A reference energy standard will be put in place for citizens and businesses to ensure competitiveness and purchasing power vis-à-vis our neighbouring countries. '

The programme law of 27 December 2021 to abolish certain taxes and energy surcharges, in particular the offshore surcharge, the strategic reserve surcharge, the federal electricity contribution and the (future) CRM surcharge, and to replace them with an increase in a special excise duty on electricity, the revenue of which also ends up in the appropriations of the general budget. In addition, the same programme law intended to abolish the federal contribution to gas and replace it with an increase in a special excise duty on gas, the revenue of which also ends up in the resources of the general budget. The 2021 programme also aims to amend the programme act of 27 December 2004, which sets the rates of special excise duty. In order to preserve the competitiveness of Belgian businesses and the purchasing power of Belgian customers and in accordance with Council Directive 2003/96 of 27 October 2003 restructuring the Community system for the taxation of energy products and electricity, the programme law of 27 December 2021 aims to introduce a differentiated rate in the special excise duty according to consumption. The level of the special excise duty to be determined by consumption band, the intention being to set the federal share of the energy bill of all consumers at the level of 2021.

- A concrete and measurable competitiveness objective is being developed not only for energy-intensive industry but also for the low-carbon technology sector. This requires a concrete analysis of their position on the global market, highlighting competitive strengths and challenges. Measurable targets for the future should be defined on this basis, as well as the policies and measures needed to achieve them, establishing the necessary links with enterprise and industrial policy. A study will be carried out in close cooperation with the relevant administrations, the Federal Planning Bureau and others, which will provide an overview of competitiveness.
- The economic support policy instruments are calibrated to serve as a springboard for positive cost-benefit analyses for innovative climate solutions.

- Other measures

- Promoting the active participation of consumers
- Belgium will advocate at European level for the assessment and monitoring of environmental, social and economic inequalities between the European Union and its trading partners, in relation to industrial policy and climate and energy policy.

See also paragraph 3.5 (iii).

Flemish Region

Strengthening energy and climate research and development

Boosting energy and climate research and development (R & D) through ordinary R & D;

The regular instruments of the Scientific Research Fund (Wetenschappelijk Onderzoek Fund – FWO) and the Flemish Agency for Innovation and Entrepreneurship (Vlaams Agentschap voor Innoveren en Ondernemen – VLAIO) fund research and development in all areas of research, including energy and climate.

- The FWO finances forward-looking fundamental and strategic scientific research in all fields of science in universities and research centres in the Flemish Community and also stimulates collaboration between Flemish universities and other research institutions. The FWO funds both excellent research projects and promising researchers after an inter-university competition and evaluation by national and foreign experts.
- As a business contact point in Flanders, VLAIO stimulates and supports innovation and entrepreneurship, and contributes to the creation of a favourable economic climate. In the field of research and innovation, VLAIO provides grants for research and development projects. VLAIO also supports development projects in the subsequent phases of the innovation process (pilot phase). VLAIO also provides support through advice, training and stimulation of coordination and networking. VLAIO grants are awarded to projects in all areas of research and innovation, including energy and climate, following an assessment based on the innovation strand and the economic added value for Flanders.

The international dimension is essential for research and innovation policy in Flanders. Energy and climate issues are global challenges that require a holistic approach, especially in the field of research and innovation. It is only through joint engagement and stronger European and international collaboration in research and innovation that we will be able to accelerate the development of innovative technologies. Flanders will therefore continue its efforts to support the strategic objectives of the European Strategic Energy Technology Plan (SET-Plan), which aims to accelerate the development and market deployment of low-carbon technologies, both through the various SET Implementation Working Groups and through EERA (European Energy Research Alliance). Flanders participates in the European Partnership for the Clean Energy Transition (financial contribution of EUR 1 million per year), which concretely supports the objectives of the SET-Plan.

In addition, Flanders participates in several IEA technology collaboration programmes.

Structural funding of strategic research through Strategische Onderzoekscentra (SOC – Strategic Research Centres)

The four Strategic Research Centres (SOC) in Flanders receive an annual grant to carry out strategic fundamental research in their field, which is organised by the conclusion of a multi-annual agreement between the Flemish Authority and SOC. SOC thus play an important role as a bridge between more basic and applied research. This includes the commercialisation of knowledge through the (co-) foundation of spin-offs, for example. The three SOC below are relevant in the context of energy and climate policy. The fourth SOC, the **Vlaams Instituut voor Biotechnologie (VIB)**, which focuses on strategic research in life sciences and biotechnology, is less relevant for mitigation, but contributes to

adaptation through plant biotechnology.

- a. **Flemish Institute for Technological Research** (Vlaamse Instelling voor Technologisch Onderzoek – VITO): focuses on sustainable development and innovation in clean technologies;
- b. **IMEC**: the Nanoelectronics and Digital Technology Research Centre (PV technology, battery research and ICT with specific applications for the energy transition and smart cities);
- c. **Flanders Make**: strategic Research Centre for Manufacturing (energy efficiency of products and technologies).

EnergyVille is a research collaboration between KULeuven, VITO, IMEC and UHasselt in the field of renewable energy and smart energy systems. In 2022, the decree on the organisation and financing of science and innovation policy (the decree on S & I policy) gave a legislative basis to the EnergyVille Foundation, and a first multi-annual agreement (with the corresponding funding) could be concluded between the Flemish Government and the EnergyVille Foundation. The EnergyVille Convention includes the contribution to the objectives of the European SET Plan. Through EnergyVille, the Flemish Authority will finance a High Voltage project (including High Voltage Direct Current). This HVDC project will concretely support the objectives of the SET-Plan, in particular those of the HVDC Working Group.

Cluster policy

Cluster policy in Flanders is an important lever to strengthen the position of Flemish companies in the regional and international market. Cluster policy is one of the components of economic policy and innovation in this regard and is thus complementary to the regular support instruments for R & D for (individual) enterprises.

The recent cluster policy has led to the establishment of various networks of innovative enterprises (IBN) and cutting-edge clusters, which, through cross-sectoral collaboration, will focus on the development of pioneering technologies, services and innovative processes linked to socially important themes with economic added value for Flemish companies, including the social challenge of the energy transition linked to a climate-resilient society. The leading clusters and IBN are organisationally supported. In addition, financial resources are allocated for projects in cutting-edge clusters. Since summer 2017, a continuous call for cluster projects has also been launched. It includes objectives in line with the priorities Energy transition, circular economy and Industry 4.0 of the Vision 2050.

This policy, including calls for transition priorities, will be continued during the planning period with a further tightening of support for the transition of the Flemish industry to a circular and CO2 low carbon industry.

The current cluster policy supports flagship clusters that focus on innovative solutions and technological breakthroughs needed to achieve the energy transition and that will contribute to a climate-resilient society in Flanders; in particular the Flux50 flagship clusters, Catalisti, the Blauwe Cluster.

Cutting-edge clusters: 339

- d. **Flux50** facilitates cross-sectoral collaboration between the energy, ICT and building sectors to develop innovative and multidisciplinary energy products and services in five innovative areas (energy ports, micro-grids, multi-energy solutions at neighbourhood level, cloud energy

339 Other cutting-edge clusters are: Strategisch Initiatief materialen in Vlaanderen (SIM); Vil (logistics sector); Flanders' FOOD (food processing industry); MEDVIA (biotechnology, life sciences and digital or medical technologies).

applications and smart renovation).

- e. **Catalisti**, the leading chemical and plastic cluster, aims to increase the competitiveness of the chemical and plastic sector in Flanders through innovation, including innovation towards sustainable products and processes.
- f. **Blauwe Cluster** put forward a strategy for a competitive and sustainable blue economy in Flanders.

There is also the **Waterstof Industrie Cluster** (Hydrogen Industrial Cluster), the hydrogen industrial partnership involving companies, also centres of expertise and authorities; The WIC (Waterstof Industrie Cluster – Hydrogen Industrial Cluster) is coordinated by WaterstofNet, the Flemish Hydrogen Networking and Knowledge Sharing Platform.

Research and innovation with the aim of making the Flemish industry circular carbon and low carbon emissions of CO₂ in 2050

Framework for the transition to a low CO₂emitting industry

Industry plays an important role in the energy and climate transition. The full shift to a low CO₂ emissions industry will require a major industrial transition in the coming decades, not only in Flanders but worldwide. An important precondition in this respect is that the targeted change does not affect the competitiveness of the Flemish energy-intensive industry, as this would lead to a shift of production capacity to other regions of the world, where the energy and climate transition is less prioritised. Ambitious, sustained and far-reaching efforts are therefore needed to find a fundamental solution to this climate and energy challenge. It is clear that, due to its major impact, the basic industry will play an important role in the implementation of these projects, in each case in collaboration with the research community and the authority. New technologies, products, raw materials and production processes will be needed.

Flemish Moonshot programme

The programme called **Vlaamse 340 Moonshotprogramma** was therefore launched in 2019, with the aim of stimulating research and innovation to contribute to a low-carbon Flemish industry in an economically viable context. More specifically, innovative research under this Moonshot programme will enable breakthroughs to be made by 2040 in order to optimise the manufacturing processes of essential building blocks or low CO₂ products and in a circular way by 2050. The Moonshot programme is therefore expected to make a significant contribution to reducing CO₂ emissions in Flanders and globally.

This initiative aims to develop knowledge in the longer term, with an annual budget of EUR 20 million over 20 years.

The Moonshot programme consists of four essential and interlinked research trips (MOT: Moonshot search trip)

1. MOT1: biobased chemistry for unique products with high added value;
2. MOT2: carbon circularity in materials;
3. MOT3: electrification and radical transformation of processes;
4. MOT4: energy innovation.

These four research trips are based on five skills (“enablers”) for which Flanders has a leading expertise,

340 <https://moonshotflanders.be/>

namely:

- a. Conversion technology.
- b. Separation technology.
- c. Predictive technology.
- d. The storage of energy.
- e. Transport of energy.

Given the importance and urgency of exploiting scientific results, the flow of fundamental research to industry is becoming an increasingly important topic. So far, activities have focused mainly on the development of the technology itself. It is essential to accelerate the advancement of basic research towards a more industrial recovery to a low-carbon industry. The interaction between scientific consortia and industry, as well as the assessment and exploration of the tools needed for this purpose, are high on the agenda from 2023 onwards.

Flemish Climate leap Transition Programme

In the period 2019-2020, the multidisciplinary consortium conducted a contextual analysis that included exploring the transition potential of the Flemish industry by identifying promising pioneering routes and opportunities for industrial transition in Flanders (including the possible adjustment of the Flemish Moonshot).³⁴¹

This contextual analysis is the starting point for the design and implementation of a policy framework for the Flemish industrial transition: **the Flemish framework for industrial transition “Klimaatsprong”**. At the beginning of 2022, this transitional framework was adopted by the Flemish Government.

To adopt a cross-cutting approach, an indicative roadmap up to 2050 will be used, which will be reviewed and updated according to the policy cycles. Every five years, the Flemish Government will submit a programme note for the energy and climate transition of industry, which will take stock of the implementation of the previous note and include the approach for the following five-year period. Based on a broad analysis of the current situation, a long-term and medium-term vision for the industrial energy and climate transition programme is developed, but also short-term operational objectives and policy options and actions are formulated for the relevant legislature. No later than one year after taking the oath, the Flemish Government approves this Flemish strategy and communicates it to the Flemish Parliament.

On 3 February 2023, **Ontwerpprogrammanotavoor de periode 2022-2025** was in principle approved for the first time by the Flemish Government.³⁴² After this initial approval in principle by the Flemish Government, an opinion will be sought from the Advisory Councils concerned. An updated programme note is then submitted to the Flemish Government for final approval.³⁴³

A permanent consultation body with industrial partners has also been set up to prepare the practical implementation, steering and monitoring of the industrial transition programme and to advise the ministers concerned.

To support this permanent consultation body, working groups are set up to deal with specific topics. To this end, experts from industry, research organisations and other stakeholders may be invited,

³⁴¹ <https://www.vlaio.be/nl/publicaties/naar-een-koolstofcirculaire-en-co2-arme-vlaamse-industrie>

³⁴² <https://beslissingenvlaamseregering.vlaanderen.be/document-view/63DB77EB2E929B312AB5C772>

³⁴³ At the time of drafting this energy and climate plan for Flanders, the Flemish Government has not yet given final approval.

depending on the topic of the working group. During the first programme note, the work will take place in four working groups:

- a. Working Group on Transition Tools
- b. Working Group on Infrastructure
- c. Working Group on Innovation
- d. Working Group on Energy —

Encourage more intensive demonstration of low CO₂ technologies

Extension of the assistance route under the usual instruments (demonstration, pilot project, test)

Demonstration projects are a crucial step in the innovation chain and are essential to facilitate the deployment of low CO₂ technologies in society. The support route under the usual VLAIO R & D instruments has therefore already been extended to support demonstration and pilot projects. A crucial element in this respect is that the extension of the support trajectory (i.e. demonstration, pilot project, test) is sufficiently in line with business reality and allows for a favourable regulatory framework for markets to develop around these new applications.

Encourage more intensive demonstration of low CO₂ technologies via ERDF/Interreg

In the previous period 2014-2020, Flanders supported energy and climate R & D through the ERDF/Interreg programme (2014-2020), in particular through:

- priority Axis 1 “Strengthening Research, Technological Development and Innovation”
- priority Axis 3 “Supporting the transition to a low-carbon economy”
- **Priority Axis 4** “Promoting the sustainable development of large cities”.

The ERDF/Interreg framework also aims at supporting demonstration projects in the field of energy and climate, including the required infrastructure.

In order to increase efficiency and effectiveness, ERDF resources are deployed in Flanders in the eight priority areas of Flanders’ smart specialisation strategy, including the construction-environment-energy area.

The ERDF Flanders programme for the 2021-2027 programming period was approved at the end of 2022. The Regulation on the European Regional Development Fund and the Cohesion Fund provides for thematic concentration of resources for Member States with a GNI ratio equal to or above 100 % of the EU average, including Belgium. We work with thematic clusters, including the strategic objectives “A smarter Europe” and “A greener Europe”.

A sustainable Europe is defined by Europe itself as: “a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management”. As in the 2014-2020 period, the programme for the current period (2021-2027) is structured around concrete objectives. Flanders decided to allocate 40 % of the funds, a higher target than the one imposed by Europe, to the political objective “Duurzaam Vlaanderen (Europa)”. Of these funds, 50 % are intended to support specific actions in the fields of energy efficiency and renewable energy. The main objective of these actions is to present innovative projects that can serve as demonstration projects. Projects with high potential in terms of transferability will be targeted. The remaining 50 % is earmarked for actions under the specific objectives of climate change adaptation and sustainable multimodal urban mobility.

A budget of EUR 106,8 million has been earmarked for the political objective of *leurzaam Vlaanderen*³⁴⁴. The Operational Programme 2021-2027 contains concrete indicators for each of the objectives.³⁴⁵

Since the beginning of the programming period, calls have already been launched for the following actions/objectives:

- Renewable energy
- Sustainable urban mobility
- Adaptation to climate change, including through water positive activity areas

As for the 2014-2020 programming period, funds can also be allocated to projects under other policy objectives in the current period (2021-2027). The policy objective “*Slim Vlaanderen*” (the remaining 60 % of resources) focuses specifically on Flemish cutting-edge areas, including energy. These projects focus mainly on infrastructure for knowledge development.

Finally, Interreg programmes also recognise the importance of the policy objective ‘Building a sustainable Europe’. Each of the Interreg programmes in which Flanders participates has included this objective. These programmes focus on knowledge development and exchanges between the different regions of Europe.

Optimal use of the Emissions Trading System (ETS) Innovation Fund

The European Innovation Fund, which provides European support for the demonstration of innovative low CO₂ technologies, is one of the main funding channels for innovative investments in industry and energy. It is estimated that over the period 2021-2030, EUR 38 billion from the auctioning of at least 450 million emission allowances are made available at European level.

Flanders has the ambition to channel at least 2 % of the fund to the Flemish energy-intensive industry and the innovative energy sector over the period 2021-2030. This represents EUR 760 million in EU aid that can support the mobilisation of over EUR 1,3 billion of total innovative investments in Flanders over the period 2021-2030.

VEKA, VLAIO and EWI are working together to actively inform Flemish stakeholders and potential project developers about the EU Innovation Fund. The views of Flemish stakeholders are also taken into account in the development of the Fund’s modalities at European level.

Consortia of companies or companies with large investment projects eligible for support from the EU Innovation Fund are supported by the Flemish Authority with cross-cutting project teams that will provide priority support and collaboration in the preparation of project proposals.

Accelerating the deployment of innovative CO₂ poor technologies in Flanders

VLAIO’s accompanying policy instruments: financial support, accessible services and knowledge dissemination

³⁴⁴Decision VR 17/12/2021 and updated by communication to VR 8/7/2022 (recalculation at current prices)

³⁴⁵ <https://www.vlaio.be/nl/vlaio-netwerk/europees-fonds-voor-regionale-ontwikkeling/ontdek-efro-vlaanderen-0/ontdek-efro>

See: decarbonisation.

Dissemination of knowledge and provision of accessible services to raise awareness of the energy and climate transition among businesses

Through VLAIO instruments, measures are being taken to deploy and extend the available new technologies to the broadest possible target group of companies as quickly as possible. This will be achieved through the joint deployment of all knowledge dissemination instruments, both those targeting a selected group of companies and those targeting a wider group of innovators. We are thinking of instruments such as COOCK, Tetra, the Innovation and Entrepreneurship Acceleration Contract, Blikopener of high schools, etc. The aim is to achieve accelerated implementation in the broadest possible business community.

See also PART II: decarbonisation of VLAIO's support and support tools.

Support for cities and municipalities to support the transition to sustainable and smart cities in Flanders

Local administrations rely on innovative solutions to collect and unlock more and better data on climate and energy challenges.

City of Things

Under the VLAIO Smart City Call "City of Things", several projects on this topic are supported.

Some recently supported projects produce results that can be extended to the whole of Flanders. Future calls under City of Things will also explicitly focus on this intensification, for example in the 2023 call organised in collaboration and co-financing with the ERDF.

Smart Region Office

The Smart Region Office was created to best harmonise smart city initiatives in Flanders and to facilitate the implementation of larger scale projects. This is a close collaboration between Digitaal Vlaanderen, the Agency for Internal Administration (Agentschap Binnenlands Bestuur) and VLAIO, which is a contact point for local administrations, entities of the Flemish Authority and businesses.

Slimme Regio Vlaanderen vzw

Slimme Regio Vlaanderen is an organisation that, with the support of VLAIO, brings together companies in Flanders offering an offer around smart cities. This cluster initiative commits itself to connecting the companies themselves and, together with the Smart Region Office, governments, in order to achieve common solutions and create added value for its members.

Financing of the private equity company for Flanders (Participatiemaatschappij Vlaanderen – PMV) and the development of ESCO market for companies, with a particular focus on SMEs

PMV supports Flemish companies through guarantees, subordinated loans and capital investments. For energy efficiency capital investments, a budget of EUR 20 million has been set aside and participations can reach a maximum of 50 %. The PMV aims to support the Flemish economy in achieving the Flemish, Belgian and European climate and energy targets.

The Energy Efficiency Fund (EEF) invests through public-private partnerships in the energy efficiency of SMEs (ESCO model). Concretely, the EEF invests in projects, ESCO or ESCO funds where, in addition to each euro invested by the EEF in a project, at least one euro, in the same or lower tier, is provided by private funds. These projects, ESCO or ESCO funds, are managed by private partners.

Green Deals Conclusion

Green Deals are already being used successfully as an innovative way to set up voluntary collaboration between businesses, civil society and authorities. During the period of the plan, we intend to anchor, expand and exploit the scheme in order to engage in energy and climate innovation. To do so, we use the support instruments of the economic policy area in a targeted way to help achieve deals. This helps Flemish companies to achieve their ambitions and strategies for the future and become innovative pioneers.

Supporting the transition to products with lower net CO₂ emissions

Products with lower net CO₂ emissions face various barriers to their production and placing on the market:

- The same products with higher net CO₂ emissions (e.g. grey hydrogen, ethanol, plastic).
- Regulations and standards that do not take into account new technologies, resulting in new products not complying with them (e.g. the use of CO₂ in building materials).
- European or local regulations that hinder innovation (e.g. CCU and waste in HTA).

During the period covered by the plan, barriers will be identified in collaboration with businesses and it will be verified what solutions are possible and which systems can be used to facilitate the marketing of these products.

Flemish opportunities for CCU/CCS (Carbon Capture and Storage Technologies) and hydrogen

Hydrogen

In Flanders, much knowledge and expertise has already been accumulated around hydrogen, both in industry and in knowledge institutions. Flanders has the ambition to become the European leader in hydrogen technology. To this end, it has many strengths:

- Flanders is crossed by the largest hydrogen pipeline network in the world.
- A strategic position in Europe with a very dense natural gas and electricity network.
- A dense transport network, both by road and on water.
- The presence of industrial clusters in ports with large hydrogen production and consumption clusters where hydrogen can play a role in sustainability: both for direct use and for recycling CO₂ into useful molecules (e.g. electricity to methanol).
- Good logistical location in ports for the transport of imported or locally produced hydrogen.

The Flemish hydrogen vision and strategy “Europese koploper via leurzame innovatie”³⁴⁶ was published on 13 November 2020. This is a dual vision with five strategic objectives.

- Through **research and innovation**, strengthen **the Flemish industrial ecosystem** for optimal positioning in the European and global hydrogen technology value chain.
- Support **the implementation of hydrogen in Flanders to support the** sustainable transition in industry.

The 5 strategic objectives are:

1. Strengthen the Flemish hydrogen research base.
2. Strengthening the Flemish industrial ecosystem.
3. Encourage the use of H₂ and the application of H₂ technologies.
4. Show international ambition, with a focus on neighbouring countries.
5. An accompanying policy to encourage and support.

Flanders’ participation in the European project IPCEI (Important Project of Common European Interest) Hydrogen for Climate is an important implementation of the Flemish hydrogen strategy. With the launch of this IPCEI on hydrogen, Europe aims to encourage the development of a European hydrogen value chain. The hydrogen sector is also identified in the European strategy as a promising technology sector with growth potential that can support sustainable growth, and in which Europe can take global technological leadership.

In this context, Flanders finances a number of large investment projects (in the order of EUR 125 million).

In addition to IPCEI projects, VLAIO offers support to companies wishing to implement hydrogen projects through the following channels:

- Support for EU grants (Connecting Europe Facility and ETS Innovation Fund).
- The possibility of ad hoc Flemish grants to prepare investment files.

Availability of VLAIO’s regular support offer (research and innovation channels and financial support). A regulatory framework for the construction and operation of hydrogen networks will be developed.

CCU (S)

The Flemish concept **note “Visie op CCUS: carbon capture, reuse and storage ”³⁴⁷** was published at the end of 2021, setting out a vision of how Flanders intends to exploit its CCUS potential. Flanders is ideally placed to develop and deploy CCUS technology:

- Flanders has the necessary know-how in its institutions and companies to apply advanced capture technologies.

³⁴⁶ <https://www.ewi-vlaanderen.be/sites/default/files/bestanden/5fad5387b328e9000c00018b.pdf>

³⁴⁷ https://assets.vlaanderen.be/image/upload/v1659014412/Conceptnota_-_visie_op_CCUS_-_koolstof_opvang_hergebruik_en_opslag_2021_wcj9ao.pdf

- Flanders occupies a central position in the North-West European industrial cluster and is relatively close to the major CO₂ storage sites in the North Sea basin.
- The presence of Europe's largest integrated fuel and chemical cluster in Flanders generates significant emissions of CO₂ concentrated on a relatively small surface area. The existing or planned pipeline network, clusters and ports make it possible to organise the transport of CO₂ efficiently. This makes Flanders a place to create new collaborations and integrate innovative systems that capture, collect or sequester up to tens of millions of tonnes of CO₂, or transform them into useful products.

The transport of CO₂ caught over longer distances can be carried by boat or pipeline. The choice of one of the two options will be determined by the quantities to be transported, the distance to be travelled and the field. In addition to the long-distance transport infrastructure, industrial clusters also need an efficient CO₂ network and possibly temporary storage of CO₂. Different plants can inject their CO₂ onto this backbone, where CO₂ can be diverted for local use options (CCU) or cross-border transport (CCU and CCS).

Flanders is committed to supporting CCS networks and CCU facilities:

- In the context of the climate leap, there is a working group on infrastructure (with four sub-working groups): "Port and import infrastructure", "Electricity networks", "Pipelines" and "Permit"). This working group will identify infrastructure needs for CO₂ networks as part of the Industrial Transition Programme. In consultation with the competent authorities and pipeline companies, the relevant routes shall be studied and ways to build or reuse the infrastructure shall be explored. Efforts are being made to develop pipeline transport between industrial clusters and ports, both in Flanders and in cooperation with neighbouring countries. Maximum use will be made of European funding channels for projects around CCUS. Targeted co-financing of promising CCUS projects maximises the success rate of EU grants and creates leverage through this Flemish support. Flanders, through its support mechanisms, shows clear support for Flemish projects and helps businesses in their applications to the European institutions.
- Flanders concludes strategic partnerships with pioneering CCUS countries. We are also in contact with countries with appropriate storage sites, with a view to signing cooperation agreements for the cross-border transport of CO₂.

It is also developing a regulatory framework for CCUS in Flanders.³⁴⁸

- The deep subsol decree of 2009 and its implementing decree are being updated and adapted to new knowledge, new projects and new needs in the context of the CCUS. It will also develop a regulatory framework for CO₂ networks, based on the core principles of third party access and neutrality, including a framework for CO₂ liquefaction infrastructure and temporary storage. In addition, consideration will also be given to whether other regional regulations, such as the Flemish Spatial Planning Code or ETS regulations, need to be adapted.
- As the network grows and the market develops, stricter regulation is envisaged and regulated tariffs could be offered, where appropriate.

Encouraging and monitoring the competitiveness of the Flemish economy in the context of the energy and climate transition

We monitor the impact of energy and climate regulation on the competitiveness of the Flemish

³⁴⁸Geological storage of CO₂, with a view to avoiding greenhouse gas emissions, is a regional competence for environmental protection. The transport of CO₂ – intended for geological storage – also aims to protect the environment and falls within this regional competence.

economy, in particular the energy intensive Flemish industry.

Furthermore, Flanders aims to increase the competitiveness of Flemish companies in global low CO₂ value chains through cluster policy and to maintain and strengthen a competitive industry in the transition to a sustainable global economy.

Finally, there is the monitoring and monitoring of the competitive forces of the Flemish technology sector in European and international sustainable and low-emission CO₂ valuechains by and in collaboration with cutting-edge clusters and industry federations.

Energy standard

Flanders introduced the principle of an “energy standard” by way of a decree in 2018. The objective here is to ensure that the impact of the different regional components of energy cost in Flanders does not have a significant negative effect on the purchasing power of domestic customers and to protect the competitiveness of businesses by comparing energy costs with neighbouring countries and, in particular, for energy-intensive businesses, by ensuring that the sum of the different regional components of energy cost is not significantly higher than the sum of comparable costs in neighbouring countries.

The Flemish Government Agreement 2019-2024 stipulates in this respect that *the additional costs on electricity bills will certainly not increase further due to Flemish policy* and that the energy standard must be converted into effective measures so that companies with innovative power can remain in Flanders.

In implementation of these provisions, the following measures have already been taken, inter alia:

- Introduction from January 2021 of supercap conditions for cogeneration for electro-intensive enterprises;
- Adjustments to the certificate subsidy system, in particular by further basing the Guaranteed Rate of Return (IRR) on the market, providing for a maximum support volume, revising banding factors and no longer providing support in case of negative electricity prices.
- Reduced costs of PSOs passed on to the electricity bill through the purchase of green certificates, transfer of the cost of street lighting, reduction of quota obligation;
- Pass on the costs of new policies through the Energy Fund, general resources or bridge funds instead of electricity bills.

Energy costs in the three regions of Belgium are compared annually with those of neighbouring countries for certain consumption profiles, by means of a study commissioned by the 4 regulators. On this basis, appropriate measures may be taken.

Compensation of indirect emission costs for industry

To preserve the competitiveness of the energy intensive Flemish industry, a sufficiently protective framework against carbon leakage will be put in place. Flemish companies in sectors exposed to the risk of carbon leakage due to indirect emission costs included in their electricity bill may receive partial compensation for these indirect emission costs, in line with the EU State Aid Directive.

Since 2013, under EU state aid rules, Member States can compensate companies that risk losing

competitiveness due to the indirect costs of CO₂ in the electricity price and therefore risk relocating to countries with much less stringent CO₂ reduction targets.

In line with State aid rules, Flanders will maintain the compensation scheme for the period 2021-2030, in line with the energy standard and financed by the Flemish Climate Fund. Support under the new compensation scheme will be available for the first time in early 2023. Flanders will also use the exception mechanism that allows compensation of more than 75 % for a limited group of companies.

In return for compensation, companies must sign up to an energy policy contract and have a climate plan with a time horizon of 2050.

Trilateral chemical collaboration Flanders, the Netherlands and North Rhine-Westphalia

The European chemical industry, in particular the chemical industry in trilateral regions, faces a number of major challenges in a changing and increasingly competitive global market. The three regions of Flanders, the Netherlands and Nordrhein-Westphalia joined forces to develop a common vision and strategy for 2030. Building on the vision “striving to become the global driver of the transition to a sustainable and competitive chemical industrial cluster”, a trilateral strategy has been developed in partnership between industry, academia and authorities. The strategy identifies 21 measures in 3 vertical policy areas (research and innovation; Energy Raw Materials; Chemical Industry Infrastructure) and 1 Horizontal Policy Area, Policy Coordination.³⁴⁹

Encourage the export of Flemish greening technology

Following the new government agreement, Flanders will also fully focus on the export of Flemish greening technology, which will strengthen a sustainable economy in Flanders and contribute to the reduction of global CO₂ emissions.

In this context, Flanders Investment & Trade (FIT) will develop a strategy for the export of technological solutions that help address the climate challenge, in consultation with the targeted sectors. The promotion of CO₂ reduction technologies in Flanders is one of the five areas of ‘Vlaanderen Versnelt’ and³⁵⁰ is carried out by three specialised technology attachés based in three parts of the world. In addition, there is also close collaboration between technology attachés and commercial attachés in the various positions of the FIT, spread around the world. CO₂ abatement technologies are not promoted as such, but rather companies applying them in a sector, such as sustainable maritime transport, reducing emissions in logistics, wind turbines and promoting hydrogen technology in Flanders, among others.

In addition, cooperation between VLAIO and FIT will be strengthened by means of a protocol between the organisations concerned.

Region Walloon

The Regional Policy Declaration 2019-2024 states that the Government intends to increase the public resources invested in supporting innovation, to achieve the European targets of 3 % of GDP invested in research and development, and to raise this target at European level to 4 % by 2035 and 5 % by 2050, one third of which comes from the public”. A general effort will be made, including in energy research.

Aid for research is regulated by the Decree of 3 July 2008 on support for research, development and

³⁴⁹ See: https://www.ewi-vlaanderen.be/sites/default/files/bestanden/trilateral_strategy_chemical_industry.pdf

³⁵⁰ <https://corporate.flandersinvestmentandtrade.com/nl/strategie/vlaanderen-versnelt%21>

innovation in Wallonia. It is based on the European framework for research aid.

Wallonia set up in 2005 the competitiveness hubs, BLOWIN (for life sciences), SKYWIN (Aeronautics and Space), WAGRALIM (for agro-industries), LOGISTICS EN WALLONIE (for logistics), MECATECH (for mechanical engineering) and GREENWIN (for environmental technologies). They bring together the Walloon labour force around these themes. They build on the existing Walloon industrial fabric but also on expertise and knowledge in technology, research and innovation for the economic redeployment of Wallonia by creating new activities responding to societal challenges. These competitiveness hubs are based on a partnership between universities, colleges, research centres and businesses of all sizes. The concentration of research efforts also leads to the internationalisation of Walloon actors through their participation in joint research programmes (Horizon 2020 and Horizon Europe, ERA-NET and European Innovation Partnerships, EUREKA, Innovation Fund, etc.) or research infrastructures (ESFRI).

In particular, thematic clusters have also been established in the field of renewable energy and energy efficiency. They bring together research stakeholders to showcase energy research projects. These are clusters: 'Tweed' for renewable energy and 'Cap construction' and 'Eco-construction' for the sustainable construction and eco-construction of buildings. In addition, the GreenWin Competitiveness Hub aims at innovation in green chemistry and sustainable materials (including their applications in zero-energy and near-zero energy buildings).

Wallonia supports the industrial deployment of innovation results by participating in the IPCEI (Important Projects of Common European Interest) on batteries and hydrogen. IPCEI allows Member States to support industrial deployment beyond State aid limits.

Wallonia has renewed its Smart Specialisation Strategy (S3) as a condition for access to European Structural Funds. More broadly, S3 will chair the prioritisation and direction of research aid in Wallonia through roadmaps. One of the strategic areas of innovation concerns 'Energy systems and sustainable housing', based on the Green Deal and the implementation of the objectives of the Walloon Energie-Climate Plan.

In order to implement the DIS roadmaps, including the DIS "Sustainable Energy Systems and Habitat", a call for Strategic Innovation Initiatives³⁵¹ (SIIs) has been launched among industry and research stakeholders. They were called upon to form partnerships and presented some 30 initiatives. 20 were selected, of which 4 were in the topic of this DIS.

- **CONTRIBUTION:** This initiative aims to develop solutions for decarbonised mobility and transport, solutions for monitoring and securing physical systems.
- **E-WALLONHY:** The purpose of this IIS is to develop a green hydrogen economy in Wallonia, including the various components of the value chain, from the production of green hydrogen, to storage and transport and to its use for the most successful applications for this high purity hydrogen, namely mobility, buildings and specific industrial processes.
- **CETWA:** The initiative focuses on energy communities and their development and aims to make Wallonia a real economic player providing technological solutions and services in this field.
- **RENOVATION:** This IIS aims to structure the Walloon ecosystem around regional building renovation objectives, with the ambition to deploy new technological and non-technological

³⁵¹ <https://economie.wallonie.be/content/s3-wallonne-20-initiatives-dinnovation-strat%C3%A9giques-sont-s%C3%A9lectionn%C3%A9es>

solutions for the green energy transition and the habitat of the future.

Energy and climate research measures will be in line with the priorities identified within the S3. This includes the research programmes of the SPW Economie, Employment and Research (SPW EER), which henceforth supports research that is part of the SIs selected as part of the development of S3. In addition, **low-carbon hydrogen and capture of CO₂** are subject to new specific measures:

- Develop a Walloon low-carbon hydrogen sector, including strengthening research and innovation in the hydrogen sector (action 393). Here, the Walloon Region affirms its desire to position itself as a reference player in the development of low-carbon hydrogen production and valorisation sectors.
- Develop carbon capture technologies, including supporting the development of CO₂ capture and reuse_{projects}. This support programme will be accompanied by increased support for applied research (Action 399). Wallonia intends to become a key player in the transport, distribution and valorisation of CO₂.

Wallonia is building its low-carbon hydrogen strategy by 2030 and 2050. Discussions are conducted with industrial and research stakeholders.

Other actions related to low-carbon hydrogen and CO₂ are also detailed in the plan. In addition, other specific actions in the field of research are also included in the Plan. For example: research for the production of 3rd generation^{biofuels} (action 300); research on circular economy (action 405), agriculture (including action 436), etc.

S3 inspired the research, innovation and competitiveness components of the Wallonia Recovery Plan, drawn up as part of the Next Generation EU Recovery and Resilience Facility.

The Wallonia Recovery Plan (PRW) contains 6 axes and runs from 2022 to 2026. Research and energy are included in the axes:

1. Focus on the youth and talent of Wallonia

Axis 1 plans to devote, in particular, around EUR 211 million to:

- Hydrogen research.
- Strategic research in universities in sustainable technologies, including energy technologies.
- Business research and innovation in strategic innovation areas, including sustainable energy systems and housing (PRW 45 project fiche).

2. Ensuring environmental sustainability

Axis 2 plans to devote, in particular, around EUR 127 million to:

- exemplary energy renovation projects and innovative pilot projects allowing for replication effects (Renobatex, PRW 63 project fiche).
- The introduction of innovative CO₂ management and pilot project support techniques (Capture, transport, reuse and sequestration, PRW 67 project fiche).
- Innovative investment projects and support for low-carbon R &D;

- Supporting the decarbonisation of Walloon (industrial) enterprises by developing new technologies to industrial maturity by setting up a platform for demonstrators (PRW 72 project fiche).

In order to improve the participation of companies and research organisations in Horizon Europe calls for projects, thematic working groups corresponding to the clusters of Pillar 2 'Global Challenges and European Industrial Competitiveness' have been set up. They bring together representatives from industry and research, the competitiveness hubs, the National Contact Point (NCP-Wallonie) and administrations.

The European Commission encourages the Member States to set up National Contact Points to implement the Horizon Europe Framework Programme. Each PCN must follow the guidelines laid down by the Commission in this regard. In Belgium, 5 PCNs exist. Wallonia has a PCN, without a legal structure, and hosted in UWE for the purpose of proximity to businesses, on the basis of an agreement concluded between the Walloon Region and UWE. An action plan has been drawn up and will be the subject of an interim evaluation in June this year, which will be the subject of a transition to the Walloon Government. The NCP works closely with the SPW EER (responsible for comitology aspects) and the Competitiveness Plants to support the strategy for the rise of Walloon R & D & I players to Europe.

More broadly, the Climate, Energy and Mobility Working Group aims to strengthen the exchange of information between stakeholders on European programmes, the involvement of stakeholders in European technology networking and platforms, raise their interest in the European dimension and foster excellence.

Wallonia participates, by co-financing through SPW Research and SPW TLPE, in the Clean Energy Transition European Innovation Partnership, which is part of the Horizon Europe Framework Programme.

Brussels Capital Region

The Government also undertakes, within the framework of its PACE, to:

- In the framework of its 2019-2024 GPD and the NECP to recover all or part of the local collection of bio-waste and green waste in a biomethanisation unit.
- Took note of the state of play of the biomethanisation unit project. The project aims at an award of the works contract by the end of the parliamentary term (Q1 2024) and a commissioning date in 2026.
- Determine the most appropriate support mechanism for biomethanisation and, if necessary, adapt the regulatory framework before that date.
- Strengthen its investment in research, development and innovation and contribute actively to the national target of 3 % of GDP (including one third public) dedicated to research and development.
- Develop a regulatory framework for experimentation.
- Ensure enhanced interaction between different R & D & I support tools to cover all stages of development of an innovative service or product.
- Sustaining and strengthening the Regional Innovation Plan (PRI), while making it part of the

dynamics of energy and climate transition in urban areas.

- Develop an innovation measure in renovation: the Renolab. Its aim is to: contribute to the large-scale deployment of innovative solutions for the sustainable and circular renovation of the Brussels buildings.
- Encourage local and regional stakeholders to propose, via the Renolab scheme, energy renovation projects by district.
- Stimulate innovative measures to reduce emissions from construction sites and public works, in particular for construction sites concerning mobility projects. Brussels Mobility will ensure that the CO2 performance scale tool is used for its projects. The case of the site relating to the extension of the Brussels metro will act as a pioneer in this area.
- Stimulate innovative measures to reduce emissions from construction sites and public works, in particular for construction sites concerning mobility projects. Brussels Mobility will ensure that the CO2 performance scale tool is used for its projects. The tender specifications for the civil engineering contract for metro 3 serve as a pioneer in this area: this includes the CO2 balance in the award criteria.
- Communicate on the RBC vision, objectives and measures for specific audiences: both businesses and citizens need to know the environment, work and life in which they will evolve.
- Develop appropriate support for the companies concerned to avoid bankruptcies linked to these obligations.
- Engage in consultation and upward alignment with the other regions where possible in order to avoid reshoring of industries or businesses from Brussels.
- Develop performance indicators both to show that efforts are paying and to steer policies and means towards the sectors, ideas and measures that work best.
- Continually pursue the implementation of the measures with a view to simplifying the administrative procedures involved in order to relieve the constraints of professional actors and enable them to focus on their core business.

11. Where appropriate, cooperation with other Member States in this area, including, where appropriate, information on how the objectives and policies of the Strategic Energy Technology Plan are translated into a national context.

Region Walloon

- a. Description of how the SET-Plan objectives and policy are taken into account in the regional context

Energy research is implemented either through calls for proposals for projects or through aid, known as the “window”.

Research and energy support will be prioritised according to the new Smart Specialisation Strategy (S3), including the “Strategic Innovation Area” “Sustainable energy systems and housing”.

This roadmap is defined on the basis of the objectives of this PWEC and the Fit for 55 package, the subjects in which expertise is recognised in the Walloon Region, and in line with the European Roadmap (SET-Plan) and the themes of the Climate, Energy and Mobility cluster of the Horizon Europe Framework Programme.

The roadmap was drawn up in consultation with the industrial and scientific community,

competitiveness clusters, clusters and the National Contact Point (NCP-Wallonia).

Wallonia contributes EUR 900.000 per year to the co-funded Clean Energy Transition European Innovation Partnership, the themes of which come from the SET Plan.

With the exception of bioenergy, research into the production of energy from renewable sources is the poor parent of research, innovation and competitiveness policies and measures. In the case of S3, on the other hand, the strategic area 'digitalisation of flows' aims at integrating renewable energy into the electricity and thermal networks, managing decentralised energy production and developing renewable and civic energy communities, including in island systems. The strategic energy storage area will contribute to the integration of renewable energy into energy networks and the production of new energy carriers, as well as the hydrogen economy.

However, in a bottom-up approach, at the request of the industrial sector, Wallonia will be able to participate in the SET Plan's 'Number in renewables' action.

b. Description of the concrete partnerships resulting from the SET-Plan

The Walloon Region participates in the implementation working groups of the SET Plan according to its priorities.

She is an active member of the Belgian delegation in several European Energy Implementation Working Groups (IWG) of the SET-Plan (Energy systems, Renewable fuels and bioenergy, Photovoltaics, Concentrated solar power SDP/STE, Energy efficiency in industry, offshore wind, Positive energy districts; Energy efficiency in buildings). Wallonia participates in the Belgian Energy Research Alliance- (Bera) (<https://energyresearchbelgium.be/en/work-programmes>), which is part of the EERA (European Energy Research Alliance) Executive Committee. The Walloon teams are members of several EERA joint programmes which are aligned with the priorities of the SET-Plan integrated roadmaps.

A Walloon Fuel Cell and Hydrogen Research Working Group is a member of Hydrogen Europe Research, which brings together the European research community in this field and participates in the Joint Undertaking Hydrogen Fuel Cell – JUHFC. The work of the Walloon working group is thus part of the European Roadmap.

It participated in the ERA-NET352 Smart Grids, Solar, Smart Cities, ERA-NET Cofund SOLAR 2 and RegSYS (on integrated regional smart energy systems), SES (Smart Energy System) – Storage on the digitalisation of electricity grids and the joint GEOTHERMICA & JPP SES call.

In addition, it participated in Urban Europe calls, ERA-NET New Wind Atlas and JTI Hydrogen- Fuel-Cell.

It participates in the co-funded Clean Energy Transition Partnership (CETP) of the Horizon Europe programme.

c. Volume of cooperation with other SET-Plan countries

The Walloon budgets committed are around EUR 500.000 per ERA-NET call on average. The actual annual amount spent is lower. It depends on the participation rate of Walloon actors and their selection.

On the other hand, it will participate in the Horizon Europe Partnership "Clean Energy Transition

Partnership” (CETP) up to EUR 900.000 per year.

d. Other instruments of international cooperation

The Regional Policy Declaration states that Wallonia will develop international innovation cooperation as follows:

- networking of researchers and support for the setting up of projects at international level;
- support for Walloon actors to participate in international projects;
- increasing the international attractiveness of Wallonia’s scientific research potential.

In order to prepare Wallonia’s participation in the Horizon Europe research and innovation framework programme, working groups have been set up bringing together the Administration, the National Contact Point (NCP-Wallonie) and research stakeholders. Each group is dedicated to a cluster of Pillar 2 “Global Challenges and Industrial Competitiveness”. The Climate, Energy and Mobility Working Group has been involved in the development of the new Smart Specialisation Strategy (S3) and interacts with the Administration on consultations for Horizon Europe. The aim of this group is to improve the participation of Walloon research actors in the European research framework programmes in order to better integrate them into European dynamics, improve their expertise and competitiveness, create synergies and open up larger markets.

Wallonia’s participation in the NER 300 calls was not successful. Wallonia will promote the participation of companies in the Innovation Fund funded by the European Emissions Trading System (EU ETS), in particular by asking the NCP-Wallonia to do so more.

Wallonia participates in the ERDF/JTF programme, for which it initially defined its smart specialisation strategy.

Wallonia participates in the EUREKA and EUROSTARS, CORNET and COST programmes.

Wallonia supports the industrial valorisation of innovation results by participating in the Important Projects of Common European Interest (IPCEI) on batteries and hydrogen. IPCEI allows Member States to support this industrial use beyond State aid limits.

The Walloon Region participates in the technological cooperation programmes of the International Energy Agency.

The most relevant research projects funded under Wallonia’s programmes will be part of the IEA programmes, including Energy in Building and Communities, Solar Heating and Cooling, Photovoltaic Power Systems, Hydrogen and Bioenergy.

Wallonia participates in the ETSAP programme. The TIMES tool is used for the analysis and compilation of energy scenarios, and as a decision support tool. In particular, it may be used to draw up action plans in the remainder of the NECP.

Belgium participates in other IEA technology collaboration programmes, to which the Walloon Region has access but does not participate directly.

III. If applicable, financing measures in this area at national level, including EU

support and the use of EU funds,

Federal State

Adequate funding levels should be allocated. There are already several innovation funds focused on the energy transition, but they should be further developed. Programmes supporting research, innovation and pilot projects will prioritise the energy and climate transition³⁵³.

Focus on the dimensions of the Energy Union

- Flagship actions:
 - **Tax credit for research and development:** companies investing in patents and/or environmentally friendly investments in research and development (R & D) can benefit from a tax credit.
 - **Recovery and Resilience Plan:** Sustainable initiatives in aerospace: The project aims to support Belgian companies active in the aerospace sector through an ambitious research, development and innovation policy, in order to improve their competitiveness and thus enable them to participate in the development of advanced and sustainable technologies at European level. This support will be provided through calls for projects in the field of aerospace, such as sustainable aviation or space connectivity. These funds have been reused to finance ESA's space programme and can indirectly contribute to the design of this plan.

Focus on the dimensions of the Energy Union:

- **Horizon Europe:** Horizon Europe is the European research and innovation funding programme for the period 2021-2027.
- **EU Innovation Fund:** The EU Innovation Fund (EU ETS Innovation Fund) is an EU funding fund to subsidise demonstration projects that bring industrial solutions to the market that help make Europe carbon-neutral.

More information in point 5.3.

Other instruments are not limited to the dimensions of the Energy Union but can contribute to this:

- **Innovation bonus:** thanks to the innovation bonus, an employer can grant financial compensation to an employee who offers an innovation that brings real added value to the company.
- **Recovery and Resilience Plan:** Giving additional impetus to scientific research: Further impetus will be given to research at federal level along three lines: Strengthening European partnerships in research and innovation; Support research programmes that bring federal competences to the next level; Strengthen the federal research infrastructure.

At European Union level:

- **European Investment Bank:** the EIB operates inside and outside the European Union. Its funding focuses on innovation and skills, SME financing, environment and climate, and

³⁵³[Accord de Gouvernement 2020.pdf \(belgium.be\)](#)

infrastructure.

- **European Investment Fund (EIF):** The EIF seeks to facilitate access to finance for SMEs and works with accredited financial intermediaries, among others, to this end. The EIF develops, promotes and manages a number of risk capital and debt financing instruments. The EIF also provides a number of venture capital and debt financing instruments to support financial institutions targeting micro-credit.
- **InvestEU:** is the new European Investment and Financing Programme for the period 2021-2027. The InvestEU programme brings together under one roof a range of European funding instruments currently available, as well as the successful model of the Investment Plan for Europe (European Fund for Strategic Investments – EFSI). With InvestEU, the Commission will further boost investment, innovation and job creation by mobilising around EUR 650 billion in additional investment.
- **EIC Accelerator:** a European instrument that supports companies with market-oriented innovations and high growth potential through grants or blending. When the grant is awarded, coaching, advice and network expansion is also provided through matchmaking events. Therefore, each application is subject to a thorough examination of the submitted dossier. In the case of blending (grant and equity participation), the company will also be subject to a prior check.

More information in point 5.3.

Cooperation between different actors

- BEL-COO: support for a trans-regional innovation project: through BEL-COO, SMEs and large companies from different Belgian regions (at least 2) can jointly carry out an innovation project with financial support.
- Support to innovation in European cooperation (but not specifically for energy):
 - EUREKA: applied and market-oriented industrial research and development.
 - EUROSTARS: for innovative SMEs.

AMONGST OTHERS

on cooperation between

SMEs and knowledge institutions in different countries and regions.

AMONGST OTHERS

European programme of

collaboration on collective research.

Ira-SME: for the competitiveness of SMEs by focusing

CORNET: Cornet (collective Research NETwork) is a

- Support to innovation in European cooperation (thematic)

COVERS

SUSFOOD2: for more sustainable food systems, from production to consumption.

AMONGST OTHERS

materials.

ERA-MIN: for non-energy and non-agricultural raw

- SOLAR-ERA.NET: for photovoltaic energy (PV), concentrated solar energy (CSP) and

solar thermal energy.

FEEDINGSTUFFS ICT-AGRI-FOOD: ICT-AGRI-FOOD for the digital transition towards more sustainable and resilient agri-food systems.

- BLUE BIO: Blue BIO is an ERA-NET fund focused on aquatic biomass.
- ENUAC: ENUAC (Urban Accessibility and Connectivity) is ERA-NET co-funding in the field of sustainable urban mobility and urban logistics.
- CETPartnership: Clean Energy Transition Partnership is a Horizon Europe co-funding to accelerate the energy transition as part of the EU SET Plan (Strategic Energy Technology Plan).

AMONGST OTHERS: “Driving Urban Transitions to a sustainable future”. It is a European partnership to address urban challenges and help local authorities move towards a more sustainable future.

- IPCEI: IPCEI is the abbreviation for Important Projects Common European Interest. The EU thus encourages Member States to pool their resources in large integrated projects that contribute to the EU's competitiveness. These projects address important market failures or major societal challenges that would not otherwise be addressed. Europe does not directly fund projects, but, through IPCEI, it offers Member States the possibility of a wider allocation of State aid. In 2020, the Belgian authorities launched a formal call for expressions of interest for an IPCEI in the hydrogen sector which led to the selection of 15 projects³⁵⁴.

Flemish Region

Focus on the dimensions of the Energy Union:

- SME growth subsidy (strategic advice/recruitment for the growth path): SMEs with an ambitious growth path in the following areas: innovation, internationalisation, digital transformation or circular and sustainable entrepreneurship can get a 50 % grant (max EUR 25 000 for advice and/or EUR 25 000 for recruitment) for external strategic advice and/or the recruitment of a strategic collaborator.
- Agriculture and horticulture sector – support for investment and innovation: The Flemish Agricultural Investment Fund (VLIF) supports Flemish agriculture and horticulture by stimulating sustainable investments to improve the structure of agricultural and horticultural businesses, ensure their profitability and reduce cost prices. In addition, the Ministry of Agriculture and Fisheries also provides innovation support for partnerships through the European Innovation Partnership (EIP). The aim is to stimulate innovation in the agricultural and horticultural sector in order to achieve economic developments and address societal challenges.
- Revolutionary loan for Moldovan companies: LRM is an impact-oriented investment company with a combined offer of venture capital and infrastructure for each Limburg company. Small and medium-sized enterprises (SMEs) with a link to Limburg can use Breakthrough Loan for breakthrough investments in digitalisation, sustainability and internationalisation.

³⁵⁴ <https://economie.fgov.be/sites/default/files/Files/Energy/IPCEI-hydrogen-List-BE-Potential-Direct-participants.pdf>
<https://economie.fgov.be/sites/default/files/Files/Energy/IPCEI-hydrogen-List-BE-Potential-Direct-participants.pdf>

- Recovery and resilience plan: the government is investing EUR 280 million in R &D; with a particular focus on digitalisation, sustainability and health.
- PMV funds (not with EU funds)

1. Welvaarts Fund

Welvaartsfonds is a joint project of the Flemish investment company PMV, institutional investors, banking partners and fund managers. Thanks to the joint efforts of public and private capital, we are helping our companies to get through the crisis while making the transition to a sustainable economy.

Situation at the end of 2022:

Committed funds: EUR 205 million

Duration: 10 years

Investments made: EUR 11,1 million, in 5 companies

The Fund was set up as an Article 8 Fund in accordance with the SFDR Regulation.

Investment objectives:

The committed funds will be used to provide investments in participations, subordinated debt and/or hybrid financing through direct investments in eligible companies with their registered office or significant activities in the Flemish Region, with the aim of fostering a sustainable economy and financially strengthening Flemish companies with positive cash-flow histories and/or growth strategy based on innovation and the development of new markets.

The Fund aims to invest in committed portfolio companies or, by virtue of the Fund's participation, having the potential to enable and facilitate the transition to a low-carbon world. This means, for example, portfolio companies with a clear strategy to reduce carbon emissions and/or focus on energy and resource efficiency. For the avoidance of doubt, this does not mean that portfolio companies must already be intrinsically viable at the time of the Fund's investment, but the portfolio company must demonstrate the ability and willingness to introduce sustainability criteria into its business objectives or improve its performance against existing sustainability criteria.

2. Epico II background

Epico II CommV ("EPICo²"), a private private private company incorporated under Belgian law, is a private infrastructure fund investing in greenfield and operational assets in Europe.

The fund creates a growth platform by investing in capital-intensive companies and projects capable of generating predictable cash flows in the long term, focusing on topics relevant to society. In addition, it helps to make infrastructure investments for a sustainable future.

EPICo² is managed by PMV Fund Management NV, a wholly-owned subsidiary of PMV.

Situation at the end of 2022:

Committed funds: EUR 101 million

Investments made: EUR 4 million, 1 investment

The Fund was set up as an Article 8 Fund in accordance with the SFDR Regulation.

ESG objectives:

As fund manager of Epico II, PMV Fund Management NV/SA commits to investing responsibly and believes that the effective integration of certain environmental, social and governance (ESG) criteria into the investment decision-making process is essential to achieve long-term sustainable performance.

The Fund Manager acknowledges that the infrastructure assets – in which the Fund mainly invests – are important for society as a whole and will probably remain in operation for decades. Understanding the link between infrastructure assets and all stakeholders involved creates a sense of social and environmental responsibility. Therefore, ESG considerations are implemented and observed by the fund manager at all stages of the investment process and during the management of the fund. The key to this approach is a regular and pragmatic engagement with relevant stakeholders of each infrastructure asset to improve the granularity of our due ESG due diligence over time.

Any infrastructure asset, whether under construction or fully operational, generates social, environmental and economic impacts, for example by helping to reduce greenhouse gas emissions, revitalise disadvantaged areas, improve access to services and create jobs. Therefore, a significant part of the portfolio will contribute to the following United Nations Sustainable Development Goals (SDGs) in relation to the Fund's investments in infrastructure:

- **SDG 7 – affordable and clean Energy**

As a developer and operator of renewable energy assets, the fund manager's investment strategy is by nature highly aligned with the United Nations Sustainable Development Goal to ensure access to affordable, reliable, sustainable and clean energy. In addition, the Fund's investments aim to contribute to the targets set for 2030 and 2050 to significantly increase the share of renewable energy in the global energy mix and to double the global rate of energy efficiency improvements.

- **SDG 8 – Decent Work and economic growth**

As part of its ESG strategy, the fund manager aims to continuously monitor and promote safe and secure working environments in line with industry standards for all investments of the fund throughout the investment cycle. In particular, the fund manager aims to monitor the frequency rates of fatal and non-fatal accidents at work and to ensure national compliance with labour rights.

- **SDG 9 – Industry, Innovation and Infrastructure**

The investment strategy of the fund manager takes into account megatrends such as energy transition, digital transformation and transport. The Fund's investments aim not only to support the transition to sustainable infrastructure, but also to pave the way for future innovation. More resource efficiency, increased uptake of clean and environmentally friendly technologies in industrial processes and improved access to information and communications are important topics in this part of the strategy.

- **SDG 11 – Make cities and human settlements inclusive, safe, resilient and sustainable**

Cities are hubs for ideas, trade, culture, science, productivity, social, human and economic development. Urban planning, transport systems, water, sanitation, waste management, disaster risk reduction, access to information, education and capacity building are all relevant issues for sustainable urban development.

The transport sector will play a particularly important role in achieving the Paris Agreement, as

nearly a quarter of global energy-related greenhouse gas emissions come from transport and these emissions are expected to increase significantly in the coming years. The transport sector is one of the target sectors of the Fund. The Fund's investments aim to contribute to affordable, accessible and sustainable transport systems for all.

No particular attention is paid to the dimensions of the Energy Union, but therefore no exclusion from them:

- Development project: SMEs and large enterprises can obtain a grant of 25 % to 50 % of the accepted costs (minimum support of EUR 25 000 and maximum support of EUR 3 million) for the implementation of innovative and development projects.
- Research project: SMEs and large enterprises can get a grant of 25 % to 60 % of accepted costs (minimum EUR 100 000 and maximum EUR 3 million) for innovative research projects
- Baekeland mandates: SMEs and large enterprises can obtain a grant of between 50 % and 80 % of the accepted budget (staff and operating costs) if they allow a researcher (employed or not) to carry out a doctorate in close cooperation with the company.
- Innovation mandates (GI): SMEs and large enterprises can obtain a grant of up to 50 %. 80 % (co-financing of staff and operating costs) over 1-3 years for basic research carried out by a post-doctoral researcher
- Icon (Interdisciplinary Cooperative Research) is a type of project where an ad hoc and balanced consortium of one or more research organisations and at least three mutually independent Flemish companies develops new knowledge that can be applied in a practical way and thus contributes to wider economic and possibly social added value in Flanders. Flemish industrial partners can call on VLAIO's support.
- PMV risk capital: PMV can provide venture capital to promising companies. Like any donor, PMV invests to create added value. For PMV, this added value must be both financial and social. PMV thus contributes to prosperity and well-being in Flanders.
- Feasibility study R & D: SMEs and large enterprises with legal personality and (future) activities in the Flemish Region can obtain a grant of 40 % to 50 % (of accepted costs) from VLAIO for a feasibility study. The purpose of this study is to prepare and monitor the trajectory of an innovative project that can be supported by VLAIO (research, development or ICON project). The feasibility study should provide better and substantiated information on the possibilities and feasibility of innovation. The innovation envisaged by the innovative project must have sufficient potential for valorisation in Flanders. The social impact is also assessed.
- Start-up Innovation Assistance (ISS): With the Innovative Start-up Aid (ISS) measure, VLAIO helps small businesses under the age of 2 to develop an innovative project that acts as a pioneer in a market or sector. The support consists of a financial grant of EUR 50 000 combined with external expert advice and profitability analysis advice from VLAIO and its partners.
- Provincial support for innovative projects
 - Innovation aid for rural SMEs: to encourage Limburg SMEs to carry out an innovation project with other companies, the Province of Limburg provides a maximum grant of EUR 50 000 to collaborative enterprises (at least 2) for research, development or testing of innovative techniques, materials, concepts, processes and services.

- Flemish Brabant Innovation Subsidy: the province of Flemish Brabant supports innovative projects in which companies, knowledge institutions, social actors and/or government institutions engage in structural cooperation for innovation.

Region Walloon

General research support measures apply to research and energy, such as the application of the Decree of 3 July 2008 on support for research, development and innovation in Wallonia and the tax incentives for R & D, including tax credits.

The 'Plan de Relance de la Wallonie' provides considerable financial support, which is more detailed in point 3.5.1.

As regards participation in the Horizon-Europe framework programme, Horizon 2020 grants support SMEs in the preparation, filing and negotiation of collaborative research and innovation (R & I) projects.

A special effort will be made to promote, encourage and support the participation of Walloon research actors in the European research framework programmes, through the Horizon Europe working group referred to above. The National Contact Point (NCP-Wallonia) is of course part of it and an important player.

Wallonia will participate in the Clean Energy Transition European Innovation Partnership (see section 3.5.2).

It participates in the Structural Funds.

Finally, the participation of companies in the Innovation Fund will be encouraged.

For the details of the budgets, the reader will refer to point 2.4.1. General and specific funding objectives for research and innovation in the public sector and, where appropriate, the private sector in relation to the Energy Union and, where appropriate, the timetable for achieving the objectives and 3.5.1. Policies and measures to achieve the objectives of allocation of funds.

SECTION B: ANALYTICAL BASIS

The WEM scenario (Chapter 4) and WAM (Chapter 5) were constructed on the basis of a compilation of the projections of the different entities (bottom up approach).

Chapters 4 and 5 present the overall results of the WEM and WAM scenarios. In addition, the more detailed results are available in the Annex, based on the list of parameters and variables to be reported, in accordance with Annex 1 of the Governance Regulation (EU) 2018/1999.

4. CURRENT SITUATION AND PROJECTIONS WITH EXISTING POLICIES

In the remainder of the text, projections with existing policies are referred to as ‘WEM scenario (= with existing measures)’.

4.1. Projection of changes in key exogenous factors affecting the development of energy systems and greenhouse gas emissions

i. Macroeconomic projections (GDP and population growth)

The projections are explicitly based on the evolution of the population and the number of households and the number of heating degree days.

	2005	2010	2015	2019	2020	2021	2025	2030
Population	10.445.852	10.839.905	11.209.044	11.431.406	11.492.641	11.521.238	11.766.856	11.961.425
Number of households	4.452.637	4.665.956	4.822.301	4.948.398	4.988.930	5.024.851	5.175.354	5.316.666
Household size	2,35	2,32	2,32	2,31	2,30	2,29	2,27	2,25
Heating degree-days	1.829	2.308	1.691	1.696	1.504	1.905	1.761	1.761

Table 1 Parameters and variables explicitly used in projections with existing measures

Source: Assumption, compilation of regional projections for 2025-2030.

Note: Population and number of households in million; household size = average number of persons per household.

Region Walloon

Demographic change is taken into account on the basis of the prospects of the Federal Plan Bureau in order to determine the growth in the number of households (and therefore the need for housing).

In Wallonia	2015	2020	2025	2030	2035	2040
Population at 1/01 ('000)	3590	3645	3689	3730	3771	3804
Number from households ('000)	1548	1592	1639	1684	1724	1752

The **development of economic activity** is taken into account through the demand for energy services specific to each industrial sub-sector (either by assuming stability compared with 2018 or by assuming changes equal to the average for the years 2014-2018).

ii. *Sectoral changes that may affect the energy system and greenhouse gas emissions*

iii. *Global energy trends, international fossil fuel prices, carbon prices under the European Emissions Trading System (EU ETS)*

Region Walloon

• International fossil fuel prices³⁵⁵

EUR 2020/tep	2020	2025	2030	2035	2040
Oil	268	643	643	643	680
Coal	67	128	130	131	139
Gas	130	554	473	473	473

• European ETS carbon price^{355 356}

³⁵⁵Values recommended by the European Commission for the 2023 projections report

³⁵⁶Values recommended by the European Commission for the 2023 projections report

EUR 2020/tCO ₂	2020	2025	2030	2035	2040
WEM	24	80	80	82	85
WAM	24	80	80	120	250

- Degrees days

Consumption in the residential and tertiary sectors is standardised on the basis of 1761 degrees days³⁵⁷.

- Emission factors

ktCO ₂ /PJ	Wallonia ³⁵⁸
Hard coal	98,3
Coke	104,5
Brown coal, lignite	101,2
Other solids (waste, etc.)	Variable
Natural gas	56,1
Heavy fuel oil	77,4
Petroleum cokes	100,8
Light fuel oil, gas oil	74,1
GASOLINE	69,3
LPG	63,1
Other petroleum products	73,3

Equivalent CO₂ emissions are estimated on the basis of the AR5 Global Warming Potential ('GWP') values.

Greenhouse Gas	GWP
CO ₂	1
CH ₄	28
NO ₂ O	265

iv. *Evolution of technological costs*

Region Walloon

As the Walloon projections have been drawn up on the basis of the TIMES economic optimisation model, the technologies are described in the model using technical and economic data from literature

³⁵⁷Average 15/15 degree days for the last ten years (2012-2021)

³⁵⁸In TIMES, the emission factors used may vary somewhat from one sector to another

research or expert analyses. Estimated cost developments are taken into account by the model.

4.2. Dimension Decarbonisation

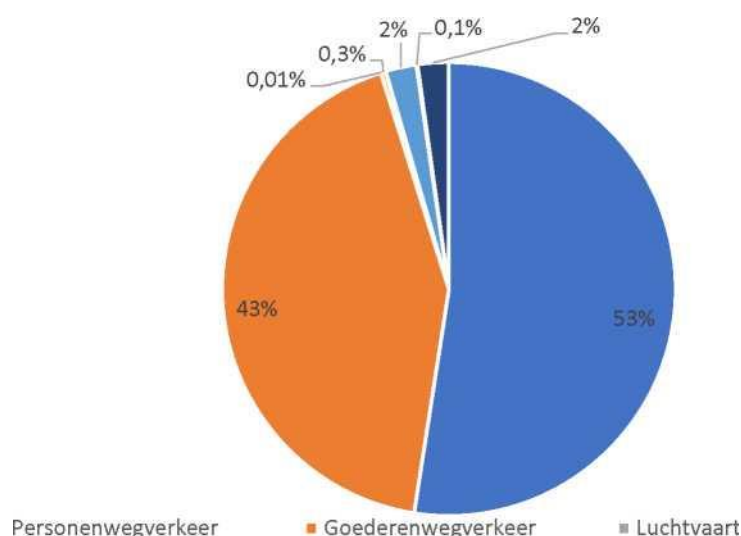
4.2.1. GHG emissions and removals

1. Trends in greenhouse gas emissions and removals in the EU ETS, effort, LULUCF and different energy sectors

Flemish Region

Current situation and trends in the transport and mobility sector

In 2021, emissions from the transport sector covered by the ESR³⁵⁹ amounted to 16.0 Mt_{CO2} equivalent, or 37 % of Flanders' total ESR greenhouse gas emissions. Emissions from road passenger



and freight transport account for the largest share of transport emissions (Figure 2-6). There are also emissions from rail traffic, inland waterways³⁶⁰, service stations and off-road vehicles at sea and at airports.

³⁵⁹Only fossil fuel consumption is taken into account for emissions covered by the ESR. Emissions from electricity generation for electrified transport (trains, trams and electric road vehicles) are included in the scope of the ETS. CO₂ emissions from the combustion of biofuels are assimilated to zero in accordance with European and international inventory guidelines.

Intra-European CO₂ emissions from the aviation sector are covered by the ETS regulation, while non-European aviation and maritime emissions (bunkering) are not covered by international climate agreements.

Inland navigation³⁶⁰ refers to inland navigation and inland maritime transport (between 2 Flemish seaports) with emissions of 0,3 Mton CO₂ equivalent in 2020.

Figure 2-7 provides an overview of the main indicators of transport volumes (kilometres travelled or vehicle-kilometres) and vehicle efficiency (energy consumption/km) for road traffic for the period 2005-2020³⁶¹.

The number of vehicle-kilometres travelled by passenger cars decreased by 9 % over the period 2005-2021. As a result of the COVID-19 crisis, a decrease of 22 % in these vehicle-kilometres was observed in 2020 compared to 2019. In 2021, after the phasing out or relaxation of the COVID measures, a 16 % increase in the number of vehicle-kilometres could be observed, but still below the 2019 level.

In 2008-2009, as a result of the financial and economic crisis, road freight transport activity and emissions fell sharply, rising again in 2012. In the period 2005-2019, the increase in vehicle-kilometres for vans and lorries was 27 % and 3 % respectively. Once again, the COVID-19 crisis led to a drop in vehicle-kilometres for vans and lorries in 2020, by 19 % and 5 % respectively compared to 2019. In 2021, freight transport activity returned to around 2019 levels.

■ Spoorverkeer
 ■ Binnenlandse Scheepvaart
 ■ Gasstations
 ■ Offroad

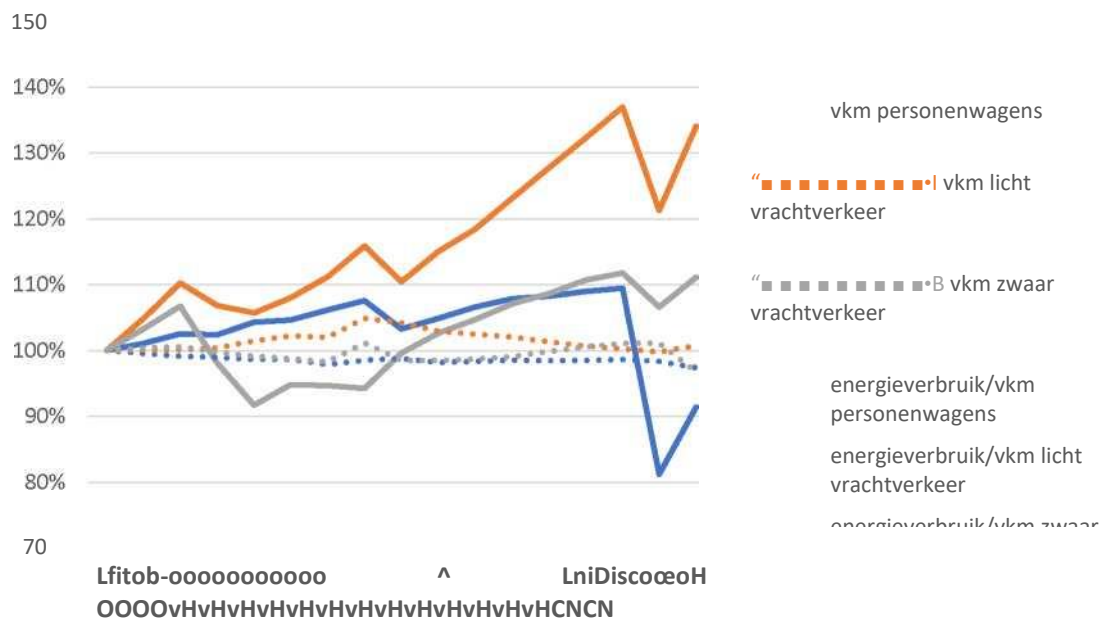
Figure 2-6. Breakdown of GHG emissions covered by the ESR from transport in Flanders in 2021

The January 2023 Viapass Communication indicates a slight decrease of 1.5 % in toll kilometres in 2022 compared to 2021. On the basis of road counts, the number of kilometres travelled by goods remained almost stable in 2022 (-0.17 % compared to 2021).

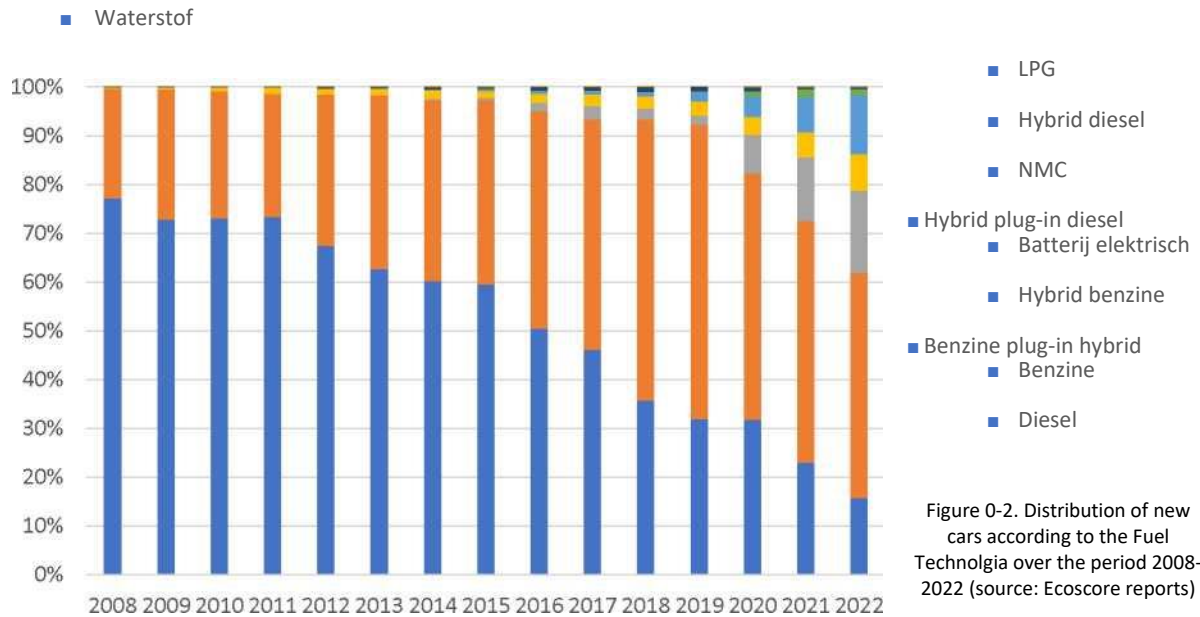
It is also noted that the energy efficiency of cars and light commercial vehicles, which has barely improved in recent years, has proved insufficient to compensate for

³⁶¹The source and methodology used to calculate the number of kilometres travelled by road transport changed from 2013 onwards. The Federal Public Service for Mobility and Transport provided data for the period 2005-2012, and the Flemish Traffic Centre (Vlaams Verkeerscentrum) took over from 2013. The amended method resulted in a 1 % reduction in the total number of kilometres travelled (by cars, light lorries and combined heavy goods vehicles). As a result of these changes, the kilometres travelled between 2005 and 2012 are not entirely comparable to those in subsequent years.

the increase in volume. For passenger cars, the increase in energy efficiency is in part negatively influenced by the increase in the share of SUVs.



The composition of the vehicle fleet largely determines emissions from the transport sector. Figure 2-8 shows that the share of diesel vehicles (including plug-in hybrids) among newly sold vehicles has already decreased for several years, reaching 17 % in 2022. This is due to the fact that even the latest Euro 6 standard is not sufficient to achieve European air quality objectives, and that is why policies to slow down the purchase of diesel cars are being implemented. For example, the Flemish Government has made efforts to green car taxation by adjusting the traffic tax (TMC) and the annual traffic tax. The change took place mainly in favour of petrol vehicles. Between 2005 and 2021, the total passenger car fleet in Flanders increased by 22 %.



Recently, the Flemish Government has also imposed stricter conditions on the favourable tax treatment of pick-ups. For many of these vehicles, the exemption from the CMT will disappear and will now depend, inter alia, on CO₂ emissions.

The shift to petrol cars has also led to a steady increase in the share of petrol in passenger transport emissions since 2012 (Figure 2-9). Due to the higher hybridisation (with lower CO₂ emissions) of petrol cars, CO₂ emissions from petrol and diesel vehicles are comparable.²² The increase in the share of petrol cars therefore has no negative impact on passenger traffic emissions.

Figure 2-10 shows the evolution of the number and share of battery electric and plug-in hybrid vehicles newly sold in Flanders over the period 2015-2022. One

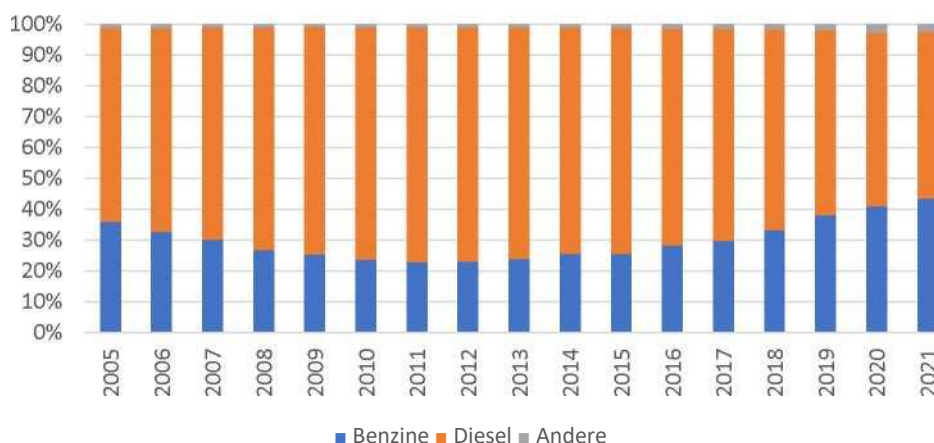


Figure 0-3. Share of fuel emissions in passenger transport 2005-2021

a distinction is made between private and company cars. In 2022, the number of new hydrogen cars sold remains limited to 15.

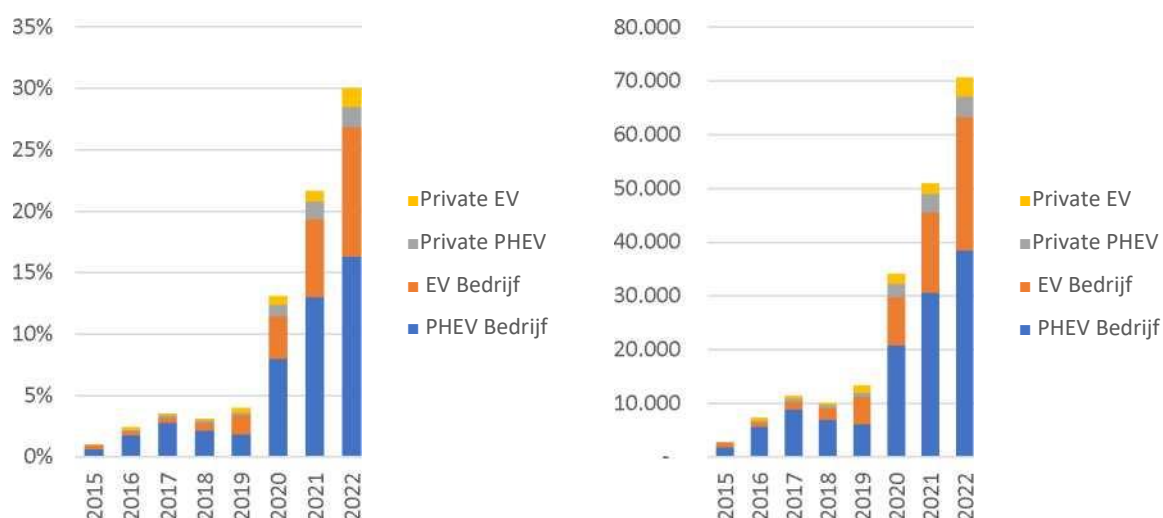


Figure 0-4. Evolution of the share and number of new battery electric cars

The proportion of battery electric vehicles (EVs) is particularly high as they do not produce any emissions. For plug-in hybrid vehicles, emissions are highly dependent on the use of charging by the owner. Natural gas vehicles (up to 11 tax CVs) or plug-in hybrid vehicles have been subject to a temporary exemption from annual circulation tax and registration tax since the tax year 2016. From 1 January 2021, they are no longer exempt. This temporary regulation has not been extended. Currently, only fully electric or hydrogen-powered vehicles are exempted from the annual circulation tax and registration tax. In particular in 2022, the share (12 %) of newly sold battery electric passenger cars accelerated compared to previous years. In 2022, the share of new registrations of plug-in hybrid cars reached 18 %. In total, in 2022, 30 % of newly registered cars in Flanders were zero-emission cars and plug-in hybrid cars. For both types of vehicles, the acceleration is mainly visible in company cars and, to a much lesser extent, in passenger cars. Despite the improved energy efficiency of vehicles, the introduction of alternative technologies and the increasing use of biofuels, greenhouse gas emissions in the transport sector have hardly decreased over the period 2005-2019 due to the continued increase in transport volumes. This resulted in a status quo of total transport emissions over the period 2005-2019. The COVID-19 crisis led to a decrease in emissions in 2020, followed by an increase in 2021. In 2021, this translates into a 19 % reduction in passenger traffic emissions compared to 2005, while freight traffic emissions increased by 3 %. A reduction of 10 % was observed for the transport sector as a whole in 2021 compared to 2005.

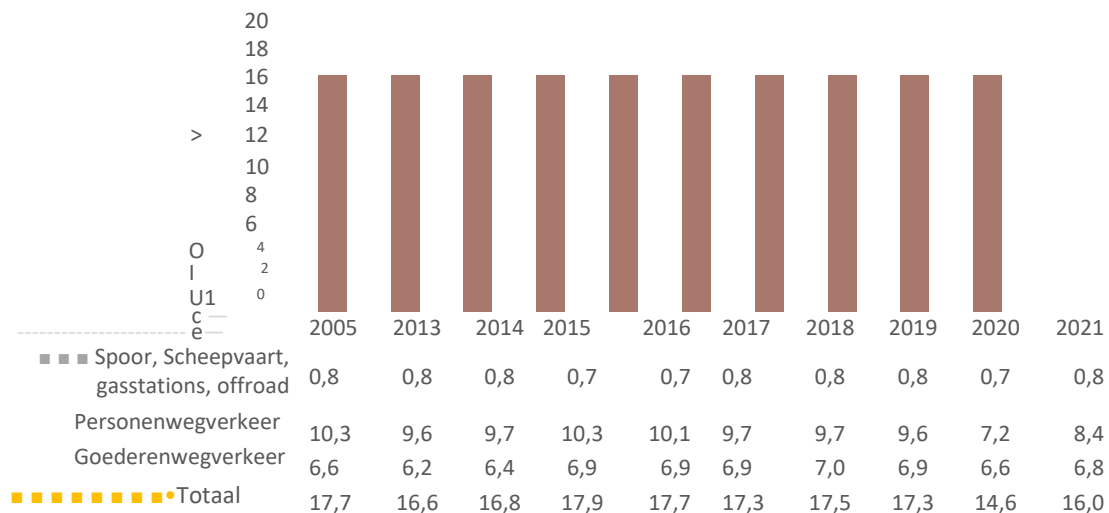


Figure 0-5. Overview of transport emissions 2005-2021

- Objectives

In order to reduce the climate impact of transport, a thorough three-pronged approach has been chosen. A first objective is to reduce the number of kilometres travelled by vehicles (target 1). Sustainable land use planning supports sustainable accessibility. The continued reduction in the growth of motorised freight transport and the reduction of motorised passenger transport and an ambitious modal shift, both in terms of passenger transport and logistics. In addition to avoiding and moving vehicle kilometres, efforts should also be made towards greening (target 2). This will also be done by using co- and behavioural change at the level of all stakeholders (Objective 3). In addition, the objective is also spatial planning that promotes climate-friendly mobility and sustainable accessibility (Goal 4).

In *Mobiliteitsvisie 2040* (Vision on Mobility for 2040), zero transport emissions by 2050 is one of the four main objectives.

Reduction of vehicle kilometres and modal shift

Moving less makes it possible to avoid emissions. The COVID-19 crisis, for example, has shown that it is possible to avoid a considerable number of vehicle kilometres by knowingly reflecting on what travel is actually needed. In addition, transport can also shift towards more environmentally friendly modes of transport (modal shift). For example, road transport can switch to rail, inland waterways or cargo bikes, and passenger transport to zero-emission shared cars, bicycles and public transport (or a combination of both).

In Flanders, the objective is to **stabilise the number of kilometres travelled (0 % in 2030 compared to 2015) for light transport. Heavy road transport will increase by a maximum of 13 % by 2030 compared to 2015** (see also Figure 2-12).

To achieve this, efforts are being made in the framework of the mobility policy on the following sub-objectives:

- The **share of sustainable modes of transport** (walking, cycling, bus, train, tram or metro) 362

362In this context, modal distribution is based on the type of vehicle. All cars are therefore considered unsustainable as the aim is to reduce

in commuting must be increased to at least 40 % for Flanders as a whole. **No more than 60 %** of the car may be used.

- In the **urban transport regions** of Antwerp, Ghent and the Flemish periphery of Brussels, the share of sustainable transport modes must increase **to at least 50 %**.
- **For goods transport**, 6,3 billion tonne-kilometres must be **transferred from road to alternative modes of transport** (inland waterway or rail network).
- In seaports, there is a sharp increase in sustainable modes of transport: 510 % (compared to 2013)³⁶³.
- The share of (electric) bicycles is expected to reach 20 % by 2025.
- By 2040, the ambition is to increase this share to 30 % and create a true “cycling reflex”: cycling must become a spontaneous transport choice for all short or medium journeys.

Greening of the fleet The objectives pursued are as follows:

- As of 2029, 100 % of new cars sold will not produce any emissions.
- From 2029 onwards, 100 % of new light commercial vehicles and vans purchased will be zero-emission vehicles. In 2025, the market share for zero-emission vans will be at least 25 %. The rest will be mostly low emission or low carbon.
- We encourage zero-emission distribution so that as of 2025 only zero-emission vehicles will still circulate in city centres for deliveries.
- For new heavy-duty vehicles purchased, the share of zero-emission vehicles will be at least 27 % by 2030. The rest will be mostly low emission or low carbon.
- In De Lijn’s new procurement procedures, we only allow zero-emission buses. By 2035 at the latest, all buses running across Flanders will be zero-emission buses.
- From 2025, city centres will only be served by zero-emission public transport. De Lijn’s subcontractors are also concerned by this measure.
- In 2030, 50 % of all other new buses purchased (coaches, school buses, buses) will be zero-emission, low emission or low carbon.

In order to continue achieving environmental gains from road to alternative modes, the inland waterway fleet must also be sufficiently green and rail needs to be further electrified (the sectoral agreement with the federal government provides for the electrification of the last non-electrified passenger transport lines). If combustion engine technology continues to be used, recycled carbon fuels and biofuels will be given maximum priority.

The VIAVIA project aims to set concrete short-term greening targets for each specific area of freight transport (multimodal corridors, sustainable urban logistics, zero-emission road transport, greening of aviation, greening of inland navigation) and to achieve them by 2030.

Behavioural change and collaboration with all relevant actors

To achieve the other objectives, measures will be taken to change citizens’ behaviour.

mileage travelled. In the context of transport regions, car passengers are considered sustainable (so as to include carpooling as a sustainable alternative). In the context of the EIRs, the constituent elements (the car as a driver and the car as a passenger separately) are always clearly stated and the assessment is done in two ways (sustainable and unsustainable people).

363 Objective of the Flemish Port Strategy (24 January 2022) available at: https://assets.vlaanderen.be/image/upload/v1643021170/MOW_Bro_Havenstrategie_24_01_22_DEF_LR_iunnql.pdf

Spatial planning that supports climate-friendly mobility and sustainable accessibility

Space policy shall contribute to the following sub-objectives:

- More than half of the population lives in well-located locations
- More than 60 % of workplaces are in easily accessible places
- The stocking distance density around all strategic collective transport nodes of the spatial backbone will increase by 50 % by 2050 compared to 2015.
- Residential density and commercial area will increase by at least 30 % by 2050 compared to 2015 in all places with (very) good node value and (very) good level of approval (both present to a greater or lesser extent).
- Important social functions and structures are accessible to everyone in an easy and safe way by sustainable (collective) means of transport or a combination of them.
- Logistics flows are organised in a sustainable way.

Maritime transport and aviation

Greenhouse gas emissions from so-called international bunkers – fuel deliveries to the international maritime and aviation sector – are not covered by the ESR climate target for Member States for the period 2021-2030. The demand for these two sectors is driven by international rather than local factors (e.g. strong globalisation of trade, tourism) and competition within these sectors is also very international. For these reasons, the reduction of greenhouse gases in these sectors should preferably be organised at global level. Flanders' policy relies heavily on the International Maritime Organisation (IMO) and the International Civil Aviation Organisation (ICAO).

Action is also important for these two sectors. In 2018, international aviation and maritime transport each accounted for around 16 % of total transport greenhouse gas emissions in the EU, and it is expected that this share will increase further due to a growing demand for international transport of both people and goods.

In recent years, the IMO and ICAO have taken important decisions and measures to reduce greenhouse gas emissions from the bunker sectors:

- In the IMO:
 - EEDI (Energy Efficiency Design Index) for new vessels.
 - MRV (Monitoring, Reporting and Verification) – obligations for fuel consumption of all vessels > 500 GT.
 - Adoption of an initial greenhouse gas reduction strategy with an absolute reduction target of at least -50 % by 2050 compared to 2008 and with relative reduction targets of at least -40 % by 2030 and at least -70 % by 2050 (CO₂ per tonne thousand travelled), both compared to 2008.
- Within ICAO:
 - Resolution on CO₂ neutral growth from 2020 onwards (CNC 2020).
 - CORSIA (Carbon Offsetting and Reduction Scheme for International Aviation) –

implementing the NQF 2020 – which took effect in 2021 and covers around 90 % of international aviation emissions.

- Standard CO₂ for new aeroplanes.
- Long-term objective for international aviation: net-zero emissions by 2050.

In addition, the EU itself has taken further steps to correct the sometimes limited level of ambition and the slow pace of IMO and ICAO in the past.

Since 2012, intra-EEA (European Economic Area) flights have been covered by the European emissions trading scheme for CO₂, with the cap on CO₂ emissions in 2013-2020 being limited to 90 % of the 2004-2006 level, and since 2018 there has been a European system for mandatory monitoring, reporting and verification of maritime CO₂ emissions.

Measures have also been taken at Flemish level, such as the promotion of energy-efficient ships and alternative fuels (e.g. the supply of LNG to ships). The Port of Antwerp is also taking measures in the form of a reduction in tonnage rights for ships with a favourable Environmental Ship Index (ESI), which takes into account, inter alia, CO₂ emissions. In addition, much effort is being made to provide quay power to ships moored in the port (e.g. Port of Antwerp).

Buildings

Current situation and trends in the buildings sector

Overview of the building sector

In 2021, the emissions of the buildings sector covered by the ESR amounted to 12,6 Mtonnes CO₂ equivalent, representing 29 % of the total Flemish greenhouse gas emissions covered by the ESR. In 2021, residential and non-residential buildings accounted for 72 % and 27 % respectively. Off-road activities (e.g. lawnmowers) also produce very limited emissions.

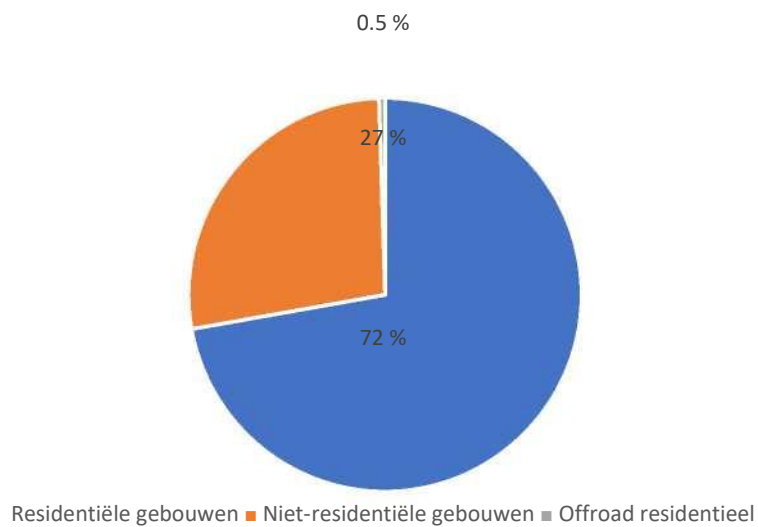


Figure 0-6. Share of emissions from the buildings sector covered by the ESR in 2021.

Residential

The figure below shows the evolution of greenhouse gas emissions in the residential sector and the evolution of the degree days³⁶⁴. Greenhouse gas emissions are highly dependent on the needs of

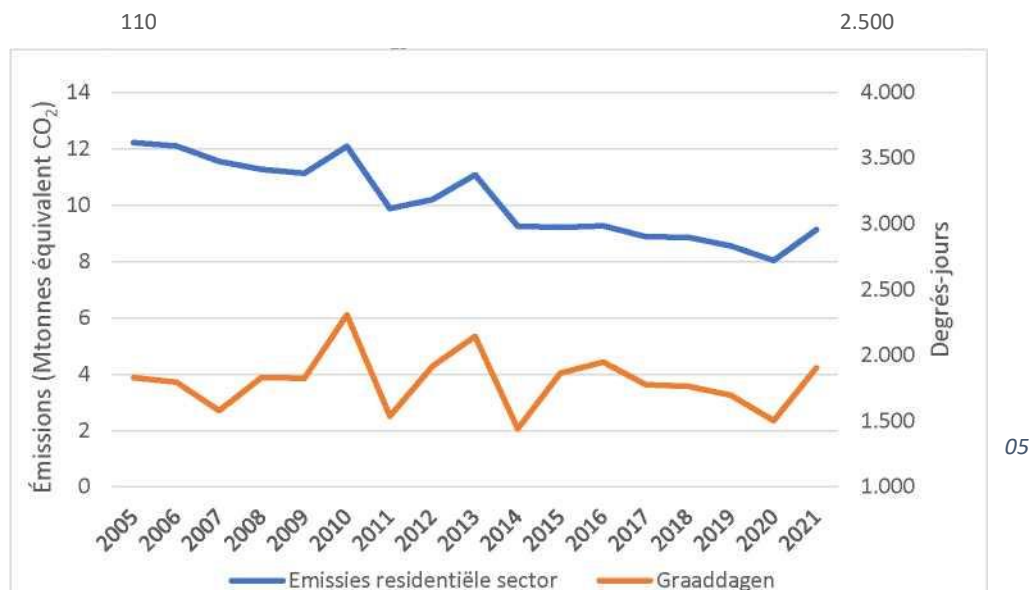


Figure 0-7. Evolution of greenhouse gas emissions in the residential sector 2005-2021

heating, which are proportional to the number of degree days. Between 2005 and 2021, a 26 % reduction in greenhouse gas emissions was observed.

The downward trend between 2005 and 2021 can be explained by the decrease in energy demand for heating (due to insulation measures) and the shift from high-carbon fuels such as fuel oil and coal to lower carbon fuels such as:

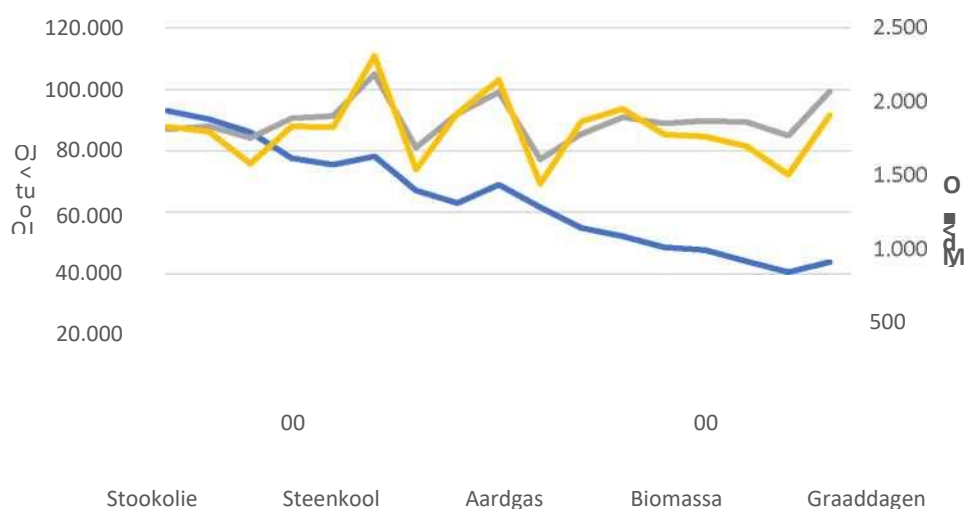


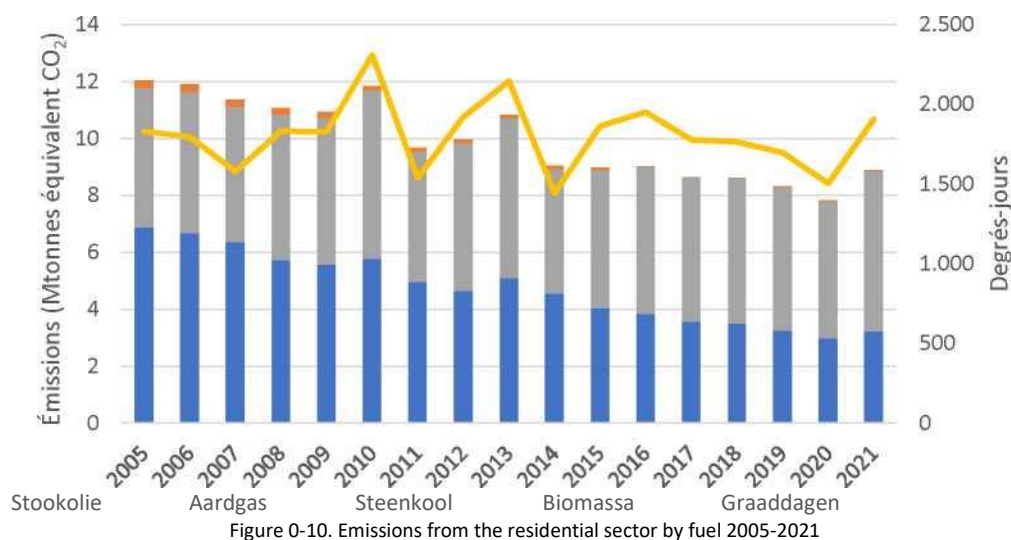
Figure 0-9. Evolution of energy consumption in the residential sector 2005-2021 natural gas and, to a lesser extent, renewable energy sources such as wood, heat pumps and solar water heaters.

This decline in fossil energy demand is explained by a sharp decrease in average consumption per household, partly offset by a continuous increase in the number of households. Over the period 2005-

³⁶⁴ The heating needs of one year are expressed in terms of number of degree days, usually based on a limit value of 15 °C for starting heating. To calculate the number of degree days in one year, each 24-hour average temperature is compared to a constant average of 15 °C over 24 hours. In other words, each degree below the average daily temperature of 15 °C is called a degree day.

2021, the number of households in Flanders increased by 14 %, but the average consumption of fuel oil and natural gas decreased by 25 % and 22 % respectively.

However, despite the shift from fuel oil to natural gas, in 2021 fuel oil still accounted for 36 % (or 3.2 Mt CO₂equivalent) of residential emissions (Figure 2-20).



Non-residential³⁶⁵

Figure 2-21 below shows the evolution of greenhouse gas emissions in the non-residential sector and degree days. Greenhouse gas emissions are highly dependent on heating needs, which are proportional to the degree days. Between 2005 and 2021, a 3 % reduction in greenhouse gas emissions was observed.

³⁶⁵The tertiary sector is defined as buildings that are neither residential nor industrial.

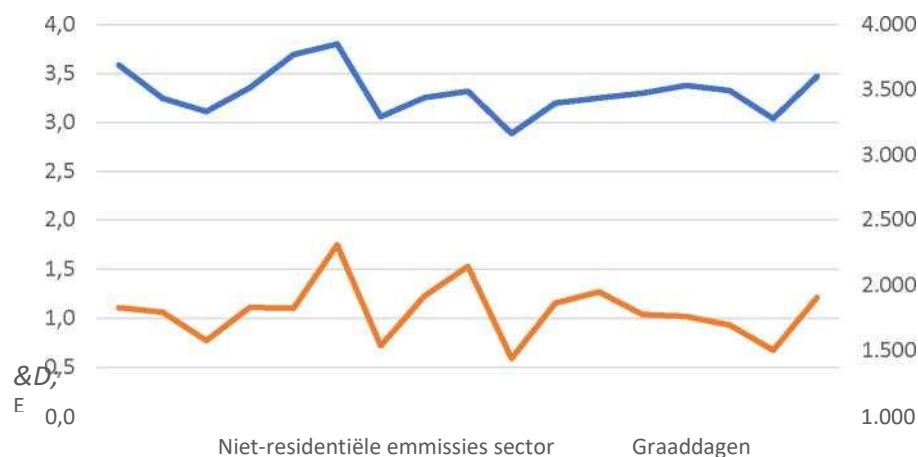


Figure 2-21. Evolution of greenhouse gas emissions in the non-residential sector 2005-2021

Since 2005, emissions have more or less stabilised, with fluctuations depending on degree days. The increase in energy efficiency and the shift to lower carbon fuels (mainly fuel oil and natural gas) (Figure 2-22) are therefore largely offset by continued economic growth in the non-residential sector.

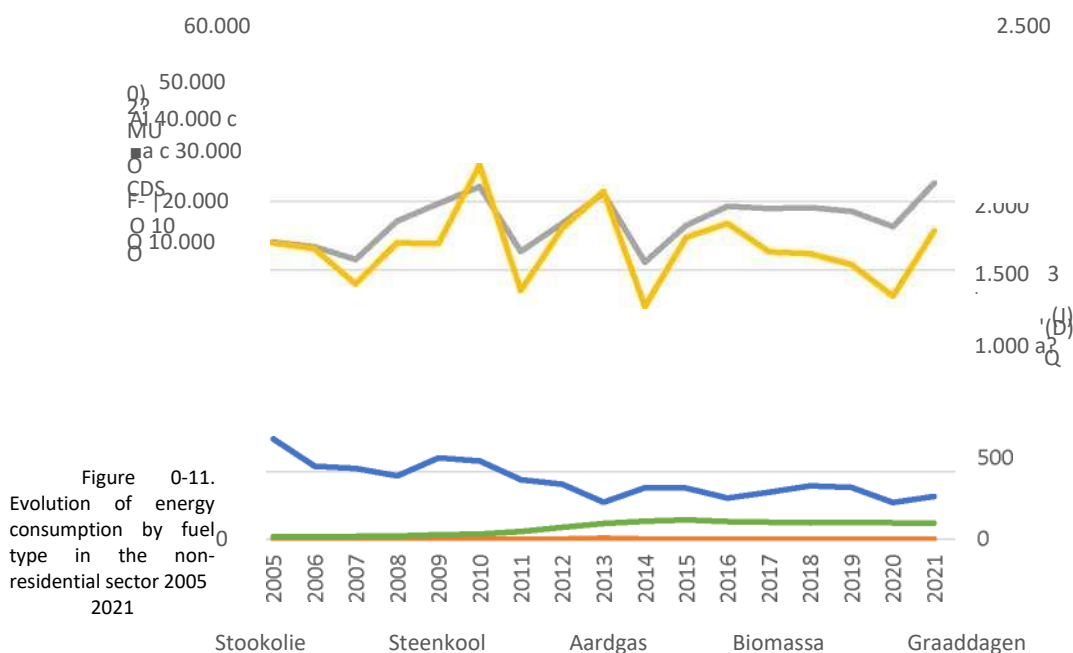


Figure 2-22. Evolution of energy consumption by fuel type in the non-residential sector 2005-2021

Agriculture

In Flanders, in 2021, emissions from the agricultural sector amounted to 7.8 Mt CO₂ equivalent, or, after conversion, 18 % of ESR emissions. The main energy sources of greenhouse gases in agriculture are fossil fuels (e.g. heating greenhouses and stalls) and off-road vehicles. Sources of non-energy emissions are methane emissions mainly from ruminant digestive processes (especially cattle) and manure management, as well as nitrous oxide released into the atmosphere through manure storage and spreading (animal) or indirect processes (e.g. atmospheric deposition and leaching). At the same time, the use of urea and limestone represents a very limited source of CO₂.

Compared to 2005, total GHG emissions in the agricultural sector have not decreased (Figure 2-32). The slight decrease between 2005 and 2008 was followed by stagnation between 2009 and 2014 and a slight increase in recent years. This increase compared to 2015 is mainly due to higher energy emissions in greenhouse horticulture and methane emissions in cattle farming.

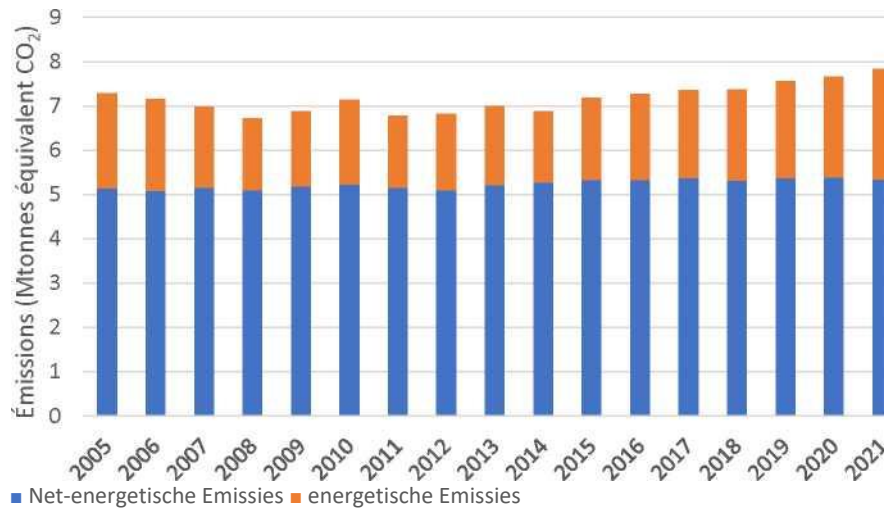


Figure 0-12: Evolution of greenhouse gas emissions in the agricultural sector 2005-2021

The main greenhouse gases in the agricultural sector in 2021 are, in descending order, CH₄, CO₂ and N₂O (Figure 2-33). Further reduction of methane and nitrous oxide, with a combined share of 69 %, remains a major challenge for Flemish agriculture. Both CH₄ and N₂O are produced during manure production, storage and spreading, and are linked, inter alia, to the size and nature of the livestock and techniques affecting the fermentation processes. The manure storage method and soil condition at the time of fertilisation, the nutrient composition of the manure and the method of application may also play a role.

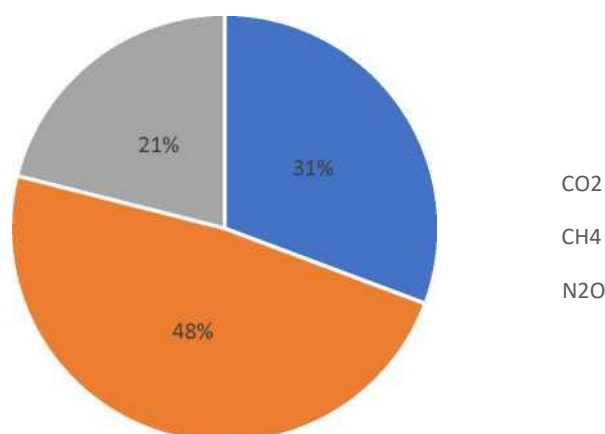


Figure 0-13: Greenhouse gas shares in agriculture in 2021

Energy emissions (from the combustion of fossil fuels for heating buildings, greenhouses, stalls and off-road vehicles) represent a relatively limited share of 29 %, while non-energy emissions (from fermentation processes, manure storage and soil) account for 71 % of emissions from Flemish agriculture (Figure 2-34).

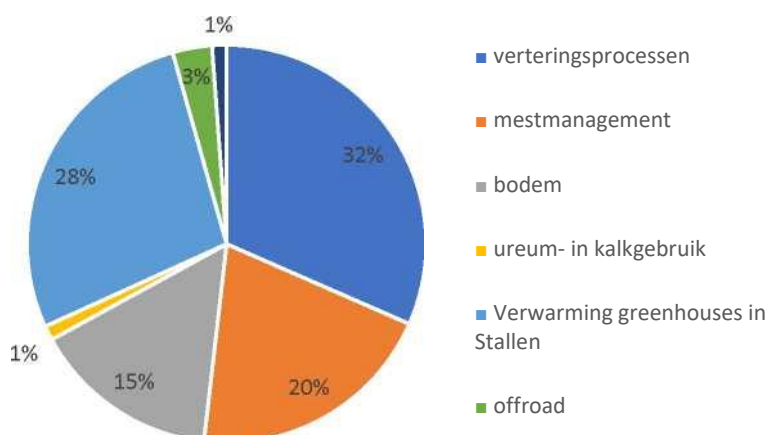


Figure 0-14: Shares of emission sources in the agricultural sector in 2021

Energy emissions result from the combustion of fossil fuels, mainly in glasshouse horticulture for the heating of greenhouses. These emissions showed a downward trend over the period 2005-2008, thanks to efforts to make rational use of energy and use of less carbon-intensive fuels in greenhouse horticulture (Figure 2-35.). At this level, there has been a shift from petroleum products (i.e. fuel oil) to natural gas and biomass (biogas and solid biomass).

Since 2008, the consumption of natural gas has increased at an accelerated rate, due to the increase in the number of cogeneration units (CHP) put into operation in enterprises. In parallel with a majority of new installations, it is also partly a replacement of older engines. Many of these old engines were operated in collaboration with an electricity generator. These are replaced by self-managed engines. This is reflected in the GHG inventory by shifting natural gas consumption from the electricity and heat sector (largely ETS) to the agricultural sector (concerned by the ESR). The primary energy savings achieved through the deployment of internal CHPs therefore benefit the electricity sector, which produces less grey electricity. In 2021, the total consumption of natural gas in the agricultural sector is largely attributable to these own-use cogeneration units. Since 2010, the Flemish agricultural sector has become a net producer of electricity, mainly due to the expansion of cogeneration in the glasshouse

horticulture sector. Over the period 2005-2021, this translates into a 16 % increase in energy emissions.

Livestock (Figure 2-36) is the determinant of non-energy emissions from fermentation processes (CH₄) and manure storage and disposal (CH₄ and N₂O). An increase in the number of dairy cows has been observed since 2012, which can be explained by the abolition of the milk quota in 2015. The combination of the 38 % increase in milk production per cow between 2005 and 2021 (with higher emissions per animal and lower emissions per litre of milk) and the increase in the dairy herd led to a 47 % increase in emissions from the digestive process of the dairy herd. The number of bovine animals for slaughter decreased by 11 % between 2005 and 2022. Enteric emissions from cattle for slaughter have decreased

by 12 % between 2005 and 2021. The total cattle population decreased by 5 % between 2005 and 2022 and emissions from digestive processes increased by 12 % between 2005 and 2021. The pig population decreased by 7 % between 2005 and 2022. Given the limited impact of poultry on non-energy emissions, it has not been included in the graph below.

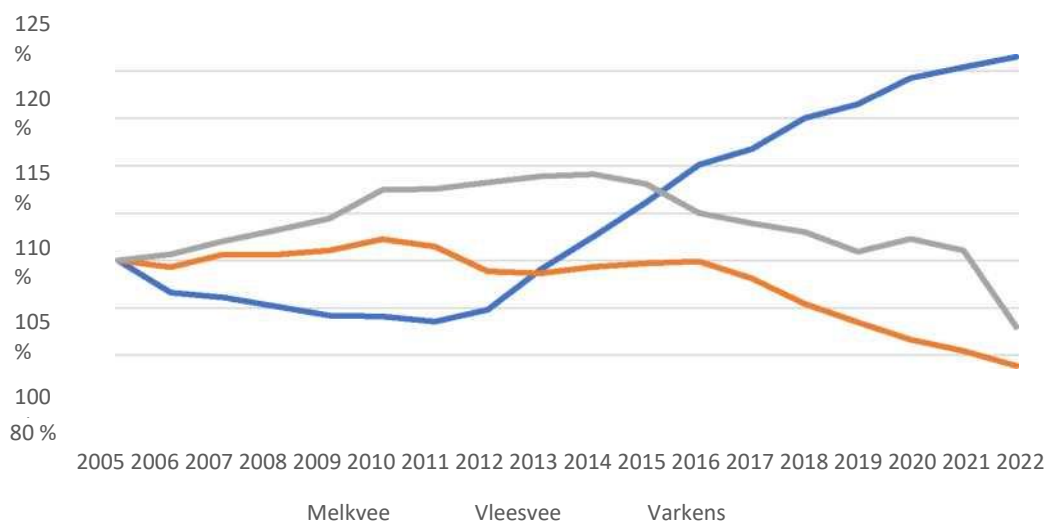


Figure 0-16: Evolution of the number of animals in the dairy, bovine, pig population 2005-2022

Manure management emissions more or less stabilised between 2005 and 2021, while soil emissions decreased by 10 % in that period. Manure emissions consist of nitrous oxide and methane. Both gases are formed by bacteria

that decompose organic matter. Manure and manure management has an impact on greenhouse gas formation and emissions. Nitrous oxide emissions from manure are mainly produced by cattle, while methane emissions come mainly from pigs. Soil emissions include nitrous oxide released directly and indirectly (through nitrogen deposition) from the processes of nitrification and denitrification in the soil. Nitrous oxide from grassland and cropland soils results from agricultural activities that add nitrogen to the soil, such as manure application, manure production by grazing animals and crop residues left on the soil after harvesting.

For the agricultural sector as a whole (non-energy and energy emissions) there is an increase (+ 8 %) in emissions over the period 2005-2021 (Figure 2-37).

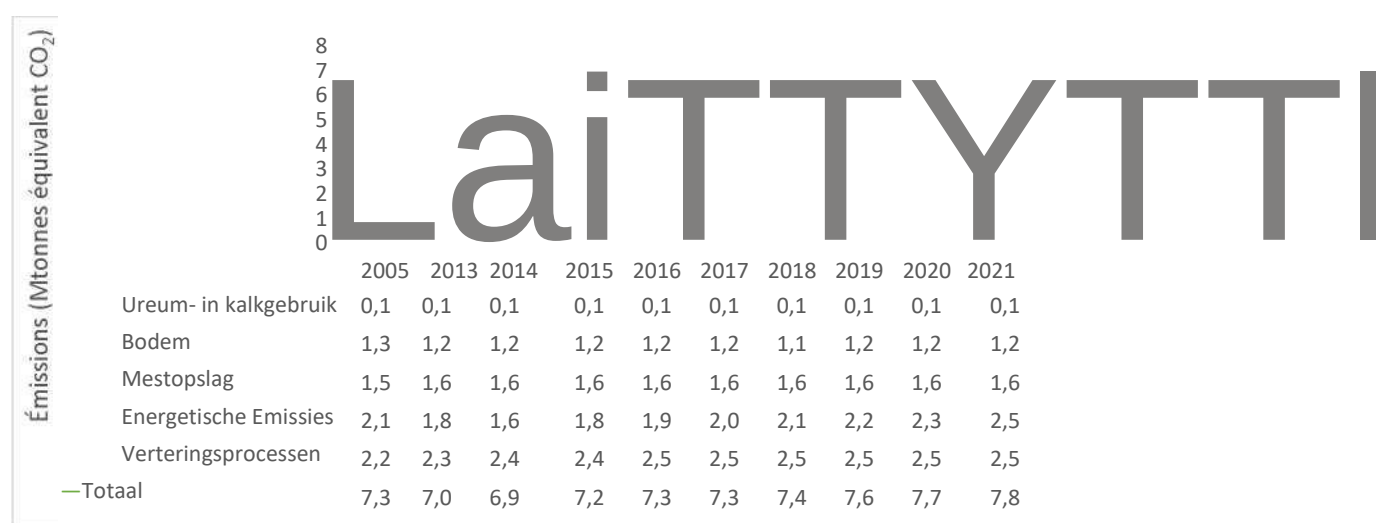
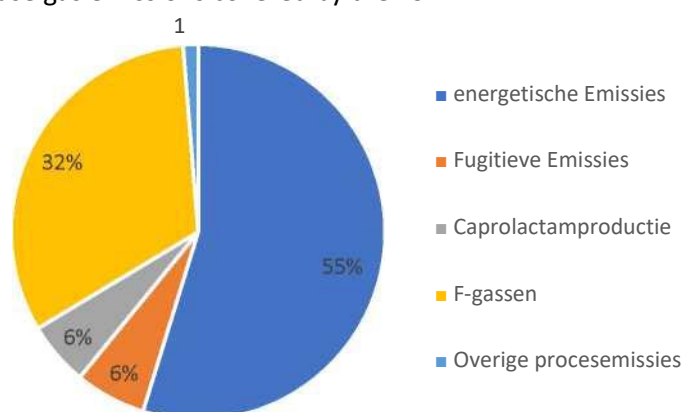


Figure 0-37 Evolution of emissions in the agricultural sector 2005-2021

Industry concerned by ESR

The total greenhouse gas emissions of the industry concerned by the ESR (i.e. industrial companies outside the EU ETS) amount to 5,3 million tonnes of CO₂ equivalent in 2021, representing 12 % of the total Flemish greenhouse gas emissions covered by the ESR.



In 2021, F-gas emissions amounted to 1,7 million tonnes of CO₂ equivalent and accounted for 32 % of ESR industry emissions. F-gas emissions (PFCs, HFCs and SF₆) are due to leaks in cooling equipment and air conditioners, as well as F-gas emissions in the chemical industry.

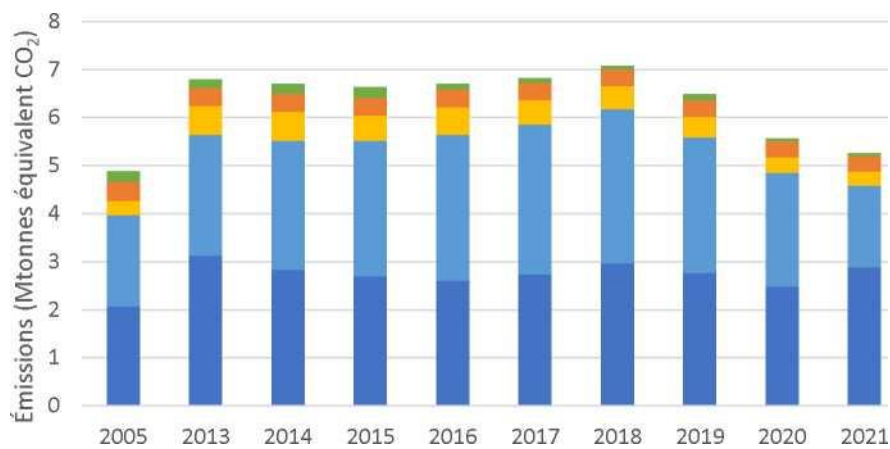
Energy-related emissions of the ESR industry, amounting to 2,9 million tonnes of CO₂ equivalent, accounted for a share of 55 % of these emissions in 2021.

These energy-related emissions of the ESR industry stem from the energy consumption of small businesses, whose energy consumption (and energy emissions) comes from the heating of buildings (offices and other workspaces) and from the heating and steam needs of businesses (e.g. in the food industry). Off-road emissions in the ESR industry (including forklift trucks and machinery in the construction sector) are also part of these energy emissions and amounted to 0,4 Mton CO₂ equivalent in 2021.

Among other process emissions (excluding fluorinated gases), only nitrous oxide (N₂O) emissions from caprolactam production (and a few smaller sources) and methane emissions (CH₄) from chemical and metallurgical processes, which together account for 7 % (or 0.4 Mt CO₂equivalent) of the emissions covered by the ESR in 2021, are included from 2013 onwards.

A small part of the non-ETS industry (6 % or 0,3Mt CO₂ equivalent in 2021) faces fugitive emissions from366 refineries, oil transport and gas storage, transmission and distribution.

Figure 2-40 illustrates the evolution of greenhouse gas emissions in the industry sector affected by the ESR since 2005. It is difficult to establish a clear analysis of historical trends for the non-ETS industry sector, as the split between ETS and ESR sectors is only available as of 2005 and the scope of the ETS has been modified twice. First in 2008 at the beginning of the second ETS trading period 2008-2012 and a second time in 2013 at the beginning of the third ETS trading period 2013-2020. Therefore, energy-related emissions are not included in Figure 2-40. In Figure 2-40, emissions fluctuated over this



period, with a significant decrease since 2018.

Figure 0-18 Evolution of greenhouse gas emissions from the ESR industry sector (at exclusion of energy-related emissions)

A number of factors largely determine the developments shown in Figure 2-40:

- The use and emissions of fluorinated gases tended to increase until 2018 (Table 2-10). This was partly due to the cessation of the use of ozone depleting substances in refrigeration plants, for

Energy-related emissions Fugitive emissions Process emissions Caprolactam production

Methane366 leaks in appliances and pipes.

which refrigerants containing F-gases have long been the most obvious alternatives. In addition, between 2005 and 2018, greenhouse gas emissions F in the chemical industry increased by 0,8 Mton CO₂ equivalent due to an increase in production. However, F-gas emissions have started to decrease since 2018. F-gas emissions decreased by 1,5 Mton CO₂ equivalent between 2018 and 2021. Measures (diversion and destruction of F-gases) have been taken and are now being implemented, so that emissions from the chemical industry have been reduced by 1,2 Mton CO₂ equivalent between 2018 and 2021. F-gas emissions from their use as refrigerants in cooling systems have stabilised since 2018 compared to previous years and have been decreasing since 2019. It is expected that, in line with the trend observed since 2014, more and more refrigeration installations will be installed with environmentally friendly refrigerants, these emissions will continue to decrease significantly in the coming years.

- Nitrous oxide emissions from caprolactam production showed an upward trend between 2005 and 2012 due to an increase in production. Since 2013, a downward trend has been discernible through optimisation of processes and implementation of reduction measures. Based on VEKP measures, further reductions in these emissions are expected in the coming years.

Table 2-10. Gas emissions F 2005-2020 (Mtonnes CO₂equivalent)

	2005	2010	2015	2016	2017	2018	2019	2020	2021
Stationary cooling									
Industrial and commercial cooling	0,68	0,96	1,06	1,05	1,04	1,05	0,91	0,83	0,75
Air conditioning and pump with heat	0,06	0,13	0,22	0,24	0,26	0,28	0,30	0,31	0,33
Chemistry	0,77	0,59	1,08	1,27	1,37	1,48	1,20	0,84	0,27
Mobile air conditioning									
Air conditioning car	0,11	0,18	0,19	0,19	0,19	0,19	0,16	0,14	0,12
Air conditioning other vehicles	0,02	0,04	0,05	0,05	0,06	0,06	0,06	0,06	0,06
Other³⁶⁷	0,25	0,27	0,21	0,23	0,21	0,17	0,19	0,19	0,17
Total	1,90	2,17	2,81	3,03	3,12	3,21	2,83	2,36	1,70

In summary, the industry sector covered by the ESR registered an increase of 8 % between 2005 and 2021 (Figure 2-41). This increase is almost entirely due to F-gases and energy emissions.

³⁶⁷ these are (limited) emissions of F-gases from plastics (HFCs), soundproofing glass (SF₆), aerosols (HFCs), refrigerated transport (HFCs), semiconductor industry (F-gas), electrical equipment (SF₆), fire protection equipment (HFCs) and household refrigeration equipment (HFCs).

Waste sector

In 2021, emissions from the waste sector amounted to 2,1 million tonnes of CO₂ equivalent (5 % of ESR emissions). Greenhouse gas emissions accounted for in the waste sector relate to waste incineration, landfills, composting and waste water treatment in sewage treatment plants. In addition, greenhouse gas emissions from the part of the energy sector covered by the ESR are also accounted for in the waste sector. These emissions are limited to methane and nitrous oxide emissions from electricity and heat production (whose CO₂ emissions are covered by the EU ETS) as well as greenhouse gas emissions (of a very limited number) of CHP installations in the electricity sector that are covered by the ESR emissions³⁶⁷. In 2021, with 66 %, waste incineration accounted for the largest share (Figure 2-44). Landfill and effluent treatment account for 21 % and 9 % respectively.

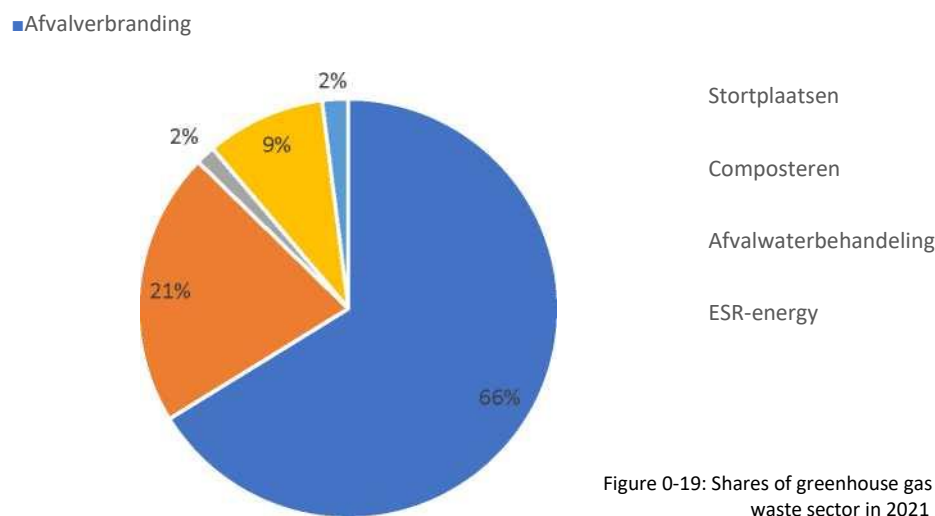


Figure 0-19: Shares of greenhouse gas emissions in the waste sector in 2021

³⁶⁷The distinction between the ETS and ECPs covered by the ESR is based on capacity. As soon as the capacity exceeds 20 MW, these plants are still covered by the ETS. Where a cogeneration installation covered by the ESR results from collaboration between an electricity generator and a partner in another sector, the consumption and production of the energy balance and the greenhouse gas inventory shall be fully attributed to the electricity sector. Where a cogeneration installation is operated under own management (e.g. by a forced horticulture company), the consumption in the energy balance and the greenhouse gas inventory is entirely attributed to the sector in which it is operated (e.g. the agricultural sector).

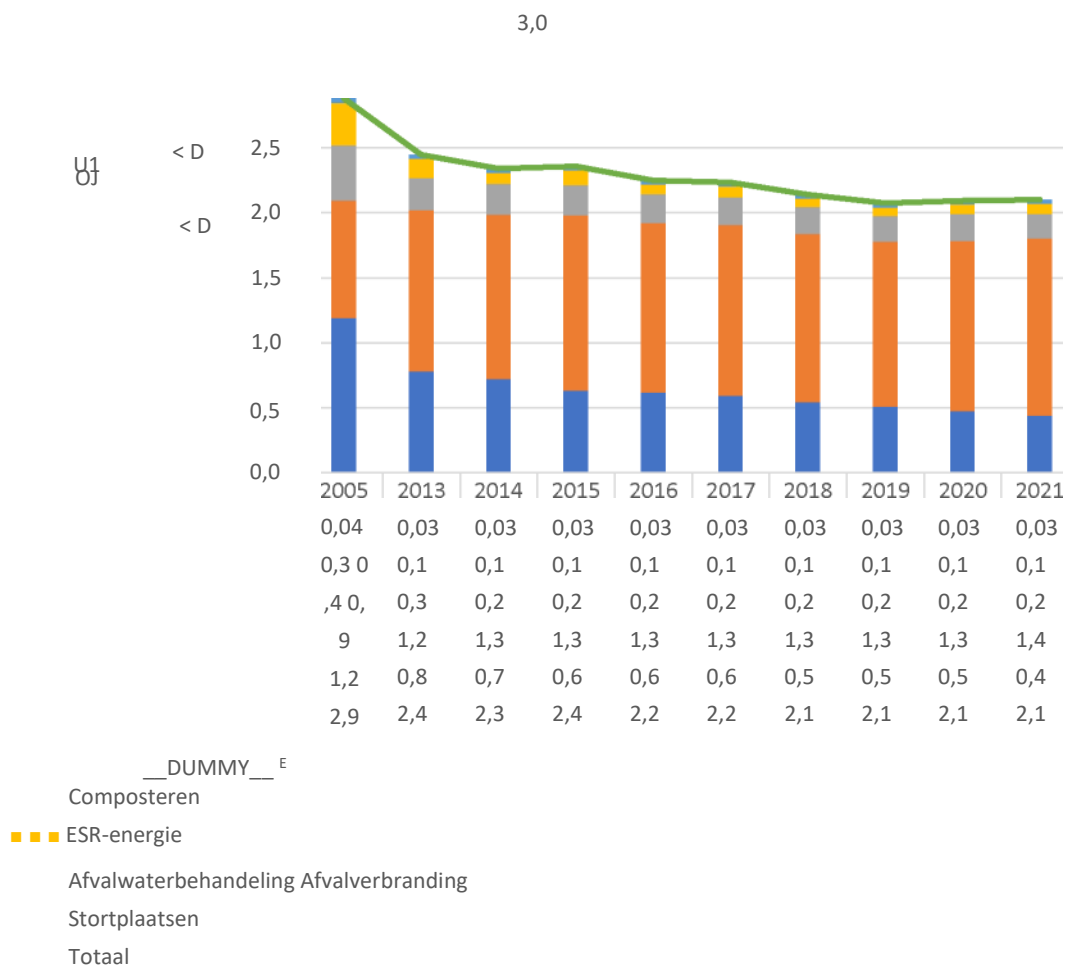


Figure 0-20: Emissions from the waste sector 2005-2021

Figure 2-46 shows the evolution of a number of indicators between 2014 and 2021. It shows that the amount of waste incinerated in the factories in Flanders has remained relatively stable in recent years. The decrease in 2019 was mainly due to works carried out in an installation which required it to be shut down. As a result, more waste was exported to incinerators outside Flanders in 2019 compared to previous years. In 2020 and 2021, the amount of waste incinerated increased again. Since capacity is tailored to the supply side, there is therefore no question of reducing incineration capacity. The amount of organic and biological waste treated is significantly increasing. Due to the COVID-19 crisis and related measures (e.g. lockdown, temporary closure of recycling parks, teleworking), in 2020 residual household waste increased for the first time in a quarter of a century. The impact of the COVID-19 crisis is also leading to a sharp decrease in the amount of (residual) primary waste from companies due to the temporary and partial cessation of the economy. In addition, some corporate waste has become household waste due to the temporary obligation to work from home. In 2021, the amount of residual household waste decreased due, inter alia, to the expansion of the CAP fraction, the introduction of weighing in the collection of household waste at home and in recycling parks, the adjustment of tariffs, the tightening of the control of recycling parks and the start of separate collection of mattresses.

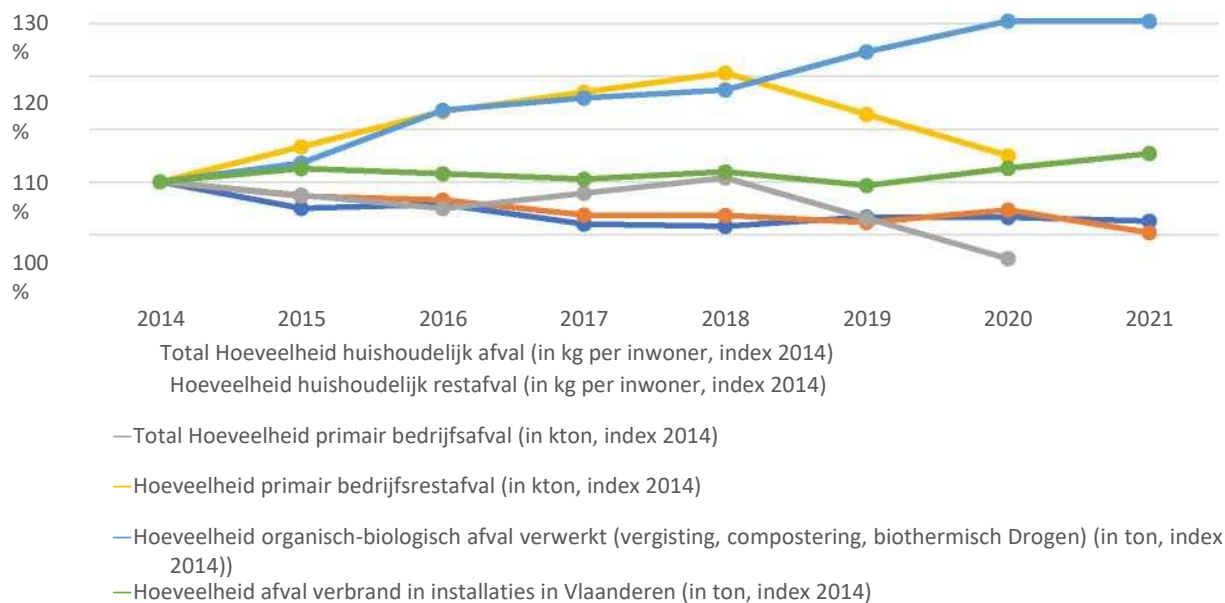


Figure 0-21. Waste sector indicators 2014-2021

LULUCF

The way in which land use is organised directly affects CO₂ concentrations in the atmosphere. Air CO₂ in soil and biomass (long-lived) does not contribute to climate change. As a result, better land management and use can curb climate change, while unfettered use can exacerbate climate change.

As part of the LULUCF policy, the IPCC advocates five strictly defined categories: forests, cropland, (permanent) grassland, wetlands and land take (settlements). In the Flemish Greenhouse Gas Inventory, carbon storage and emissions from different types of land use and conversion between them are (compulsorily) reported on the basis of these five land use categories. The land use category 'land take', among others, includes a wide variety of forms of land use, each with very different carbon storage capacity. Table 2-14 gives an overview of the breakdown of different types of land use in these categories.

Table 2-14. Definition of land use categories in the current Flemish greenhouse gas inventory

Forests	Wood maintained
	Other land uses converted to wood
Cultivated	Preserved agricultural land
	Other land uses converted to cropland
Meadows	Meadows maintained
	Other land use converted to grassland
Wetlands	Wetlands maintained
	Other land uses converted to wetlands
Artificial soils from	Maintained land take
	Other land uses converted to land take

Table 2-15 provides an overview of carbon reserves and soil carbon concentrations for the different land use categories as reported by the MVM in the greenhouse gas inventory for the year 2020. Land use

areas and land use changes are currently extracted from a 6 799-point dataset distributed throughout Flanders on the basis of a regular grid prepared and updated by the VMM. For a number of base years (i.e. 1990, 2009, 2012 and 2015), the land use was determined for each of these points and the corresponding land use changes were calculated. Each point is assumed to represent a fixed area of 199 ha. Documented land-use change is compared to the reference year 1989. This leads to limitations when it comes to calculating areas that have undergone several changes in land use since 1989. Between reference years, land use and land use change areas shall be calculated by linear interpolation. The use of a more detailed mapping to obtain land use data under LULUCF is the subject of a research project in the Department of Environment.

Based on existing datasets (e.g. forest inventory) combined with available literature, an average carbon stock per unit area is allocated to each of the land use categories, in soil (all categories) and biomass (forests only), and an estimate is made of how this average carbon stock changes over time. The latter is important for determining emissions from permanent land use. In the MVM emissions inventory, the average soil carbon stock in land take is equivalent to that of cropland. Most land converted to land take since 1990 is grassland and cropland. In the emissions inventory, it was chosen to take back the soil carbon stock linked to land take, as this approach is more conservative and takes into account potential carbon losses during construction. These carbon losses in construction due to land take compensate for the higher storage in the part of grassland in the land take category. It should also be noted that the change in soil carbon stock corresponding to a given land use change is spread over a transitional period of 20 years, while land use change is recorded immediately. Therefore, the total carbon stock reported in Table 2-15 is an estimate based on the assumption that all land use changes recorded over the last 20 years already in terms of carbon change.

Table 2-15. Overview of total carbon stock in different land use categories by the current Flemish greenhouse gas inventory.

	Surface area (ha) in 2020	Carbon of (tonnes C/ha) in 2020	Stock of total carbon (ktonne C)

Wood	151.750	89,5 (+ 118,6 in biomass)	31.573
Cultivated	515.880	53,7	27.702
Meadows	226.760	73,5	16.667
Wetlands	33.940	100,0	3.394
Land artificialisation	423.890	53,7	22.763

Figure 2-48 illustrates the evolution of storage and emissions in the different land use categories as reported in the Flemish greenhouse gas inventory. According to the IPCC guidelines, this inventory starts in 1990 and the conversion between land use categories is 20 years. In other words, a grassland converted into land grown in 1990 in the greenhouse gas inventory leads to emissions until 2010.

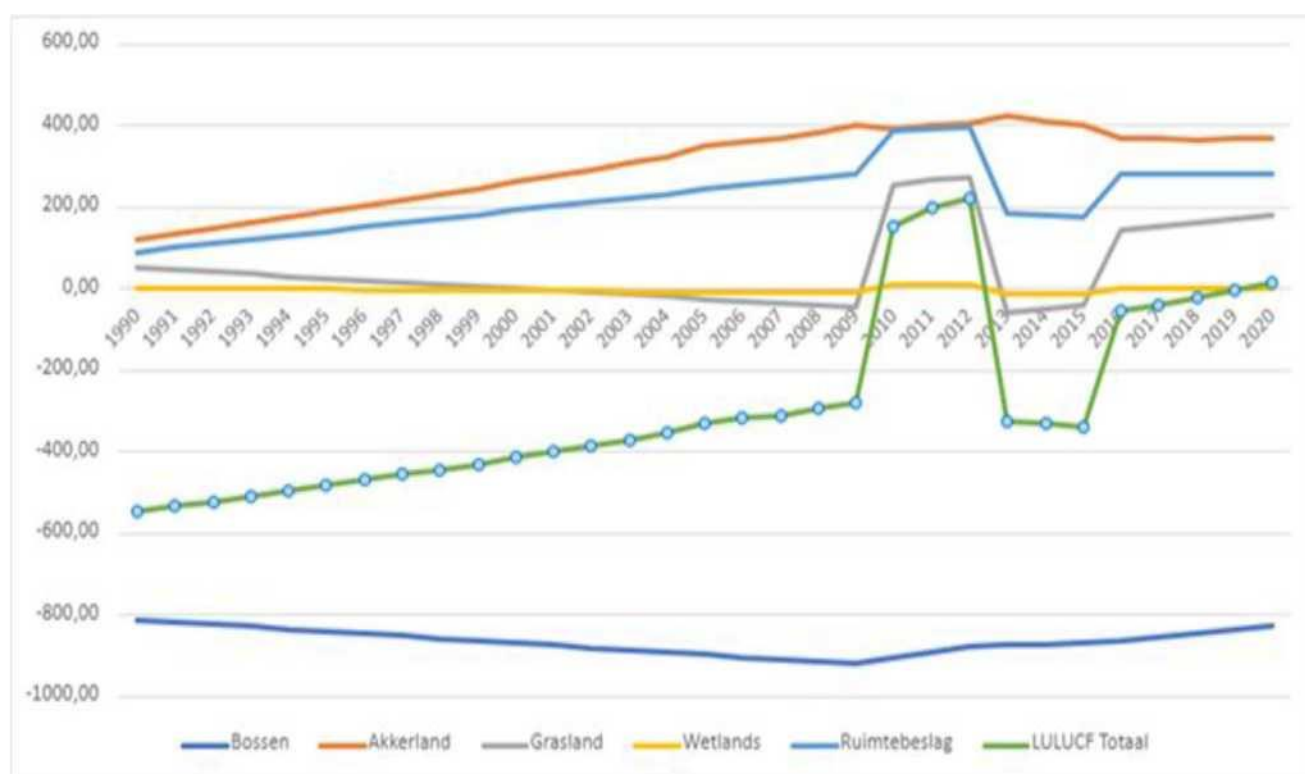


Figure 2-48. Overview of actual emissions, projections of the WAM scenario and sectoral targets in the waste sector 2005 2030

So far, storage and emissions resulting from these activities have indeed been reported, but are included in EU climate regulation only to a very limited extent, and in particular in European climate objectives.

In order to fill this gap and meet its commitments under the Paris Agreement, Regulation (EU) 2018/841 of 30 May 2018 of the European Parliament and of the Council on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework and amending Regulation (EU) No 525/2013 and Decision 529/2013/EU (the LULUCF Regulation) was approved. A revision of this Regulation was approved by the Council on 28 March 2023. This Regulation sets out the reporting rules, obligations and targets of EU Member States in the LULUCF

sector for the period 2021-2030.

To cover carbon storage and emissions from different types of land use and transitions between them, the LULUCF Regulation classifies them into accounting categories. Table 2-16 gives an overview of this breakdown.

Table 2-16. Overview and allocation of different land use types (including conversions) to different land use categories

Towards From	Forests	Cultivated	Meadows	Wetlands	Land artificialisation
Forests	Forest land	Deforested land	Deforested land	Deforested land	Deforested land
Cultivated	I'R'swoodland	Cultivated	Managed grassland	Cultivated	Managed cropland
Meadows	Afforested land	Tered-growing	Managed grassland	Managed grassland	Managed grassland
Wetlands	Afforested land	Tered-growing	Managed grassland	Wetlands	Wetlands
Land artificialisation	Afforested land	Tered-growing	Managed grassland	Wetlands	Land artificialisation

Carbon storage and emissions from soil and biomass, as shown in Figure 2-48, are partly determined by parameters that result from natural/biological processes. The LULUCF Regulation is based on the principle that Member States are solely responsible for emissions and/or storage of emissions caused by human activities. Therefore, the purpose of the accounting regulation agreed at European level is to account only for these emissions and/or storage. This is the main reason for the use of a specific basis of comparison for the counting of emissions/storage by the different land use categories in the period 2021-2030.

For some activities such as deforestation and afforestation, all additional storage/emissions are accounted for while for others (managed cropland, managed grassland, managed wetlands) a comparison with a historical baseline period is made. Finally, in a third group of activities, a comparison is made with a storage/emissions projection. For the evolution of storage by existing timber, the specific characteristics of the forest stand (age, composition, etc.) are decisive. This is why the LULUCF Regulation stipulates that storage/emissions from existing wood must be compared *ex post* with the expected emissions/storage in case of unchanged management (as in the reference period 2000-2009) of such wood, i.e. the *Forest Reference Level* (FRL) calculated *ex ante*. 'Soil Artificial' includes areas with buildings and infrastructure, including gardens, (urban) parks, sports grounds, etc. Each category may be transformed, with human intervention, into 'soil Artificial'. Therefore, it is also relevant for the LULUCF emissions balance. However, the LULUCF Regulation does not advocate any specific reference or point of comparison for this land use category. Of course, this does not mean that in practice land take does not generate any emissions. However, these emissions are implicitly included in other land use categories when they fall under land take.

At the same time, it is clear that measuring land take without further differentiation does not give a sufficiently clear picture of the actual soil carbon storage. Indeed, within land use, there is a very wide variety and there are very large sets that are not covered or built up in a green way on/with pavement, so that they (may) also make a significant contribution in the LULUCF context. This may be the case, for

example, for gardens, golf courses, (urban) parks or green spaces on structures (roofs, canvents, etc.).

With this in mind, sufficient differentiation within the land take category should be pursued.

In order to ensure that soil carbon stock can be optimally included in land take, the following proposals are made. Further details will be provided in the LULUCF Action Plan.

- In the context of land take, the actual use of space is considered as differentiated as possible. Based on this actual use of space, soil carbon is calculated.
 - We are developing a monitoring system to monitor greenish blue in land take;
 - In addition, we also make a clear distinction between coated and uncoated soils based on the definition used for the soil sealing map in Flanders³⁶⁸;
 - At project level, the effect of carbon storage of climate roofs, green roofs, canopy and specific types of land take may also be taken into account in some of the practices adopted (e.g. the grubbing up of grass on a football ground).

Table 2-17 shows how the various combinations listed in Table 2-16 are granted to the land use categories for reporting under the LULUCF Regulation.

Categories single-function land	Reference
Afforested land	Full consideration
Deforested land	Full consideration
Managed cropland	Comparison with emissions/storage in the period 2005-09
Managed grassland	Comparison with emissions/storage in the period 2005-09
Managed forest land	Comparison with emissions/storage calculated ex ante under unchanged management (FRL)
Managed wetland	Comparison with emissions/storage in the period 2005-09
Land artificialisation	Indirect accounting through other land use categories

Table 2-17. The different land use categories and the basis for comparison used by the LULUCF Regulation.

Region Walloon

According to the inventory submitted in March 2023, Wallonia emitted 34,0 million tonnes of CO₂-equivalents in 2021, representing 31 % of Belgium's annual emissions (excluding forestry). This inventory is developed according to the 2006 IPCC Guidelines and Global Warming Potentials (GWP)

³⁶⁸ <https://indicatoren.omgeving.vlaanderen.be/indicatoren/verharding#aanvullende-informatie>

applicable for the period 2021-2030³⁶⁹.

The Walloon inventory of greenhouse gas emissions, added to the inventories of the Flemish Region and the Brussels-Capital Region, forms the Belgian inventory reported annually by Belgium under the Paris Agreements (the Kyoto Protocol ended in 2020) and European commitments (*Effort Sharing Regulation*, EC/2018/842 and EC/2023/857). The figure below shows the distribution of total GHG emissions by gas type and among the main sectors.

Applicable³⁶⁹ GWP (AR5 IPCC): CH₄ = 28 and N₂O = 265. F-gases GWP are also reviewed. Emissions from road transport have been revised on the basis of fuel sales, the statistics of which are now regionalised.

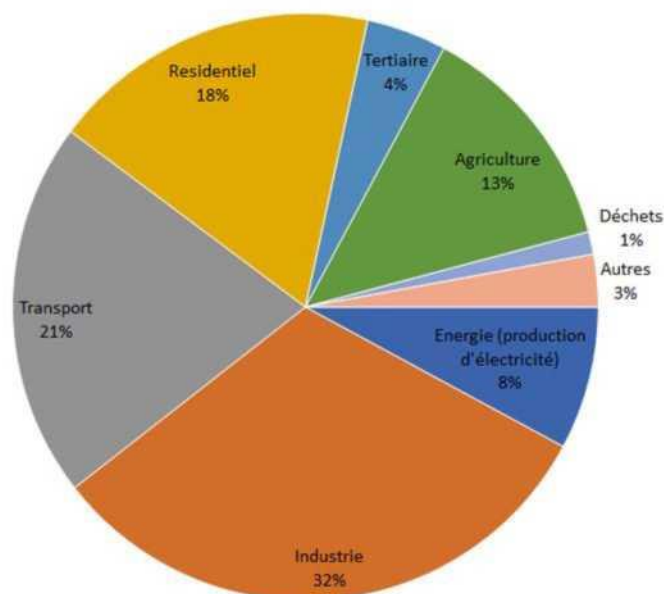


Figure 4: Distribution of GHG emissions by sector in Wallonia in 2021 – as a percentage (Source AWAC)

CO₂, which accounts for 84 % of total GHG emissions, is mainly emitted during combustion processes in different sectors: industry, transport, residential and tertiary heating, power plants. CH₄, which accounts for 8 % of total emissions, comes from 78 % from agriculture, 9 % from the waste sector and 7 % from natural gas distribution networks (compressors and leaks), with the rest coming from all combustion processes. N₂O accounts for 6 % of total emissions and is mainly emitted by agriculture (82 %), the chemical industry (2 %) and combustion processes (10 %). Finally, F-gases account for 2 % of total emissions and are emitted during the manufacture and use of certain products (refrigeration, insulating foams, etc.).

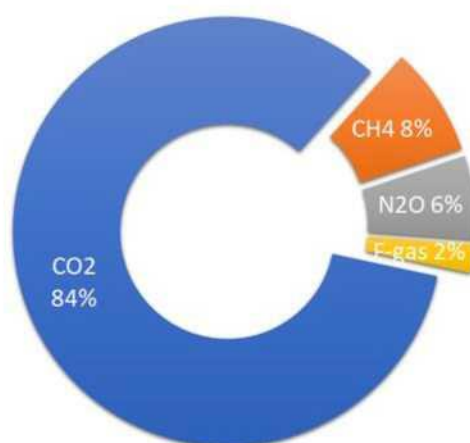


Figure 5: Distribution of GHG emissions by gas type in 2021 (Source, AWAC)

Based on the latest available estimates, anthropogenic GHG emissions (excluding forestry) in Wallonia in 2021 were 38.2 % lower than in 1990.

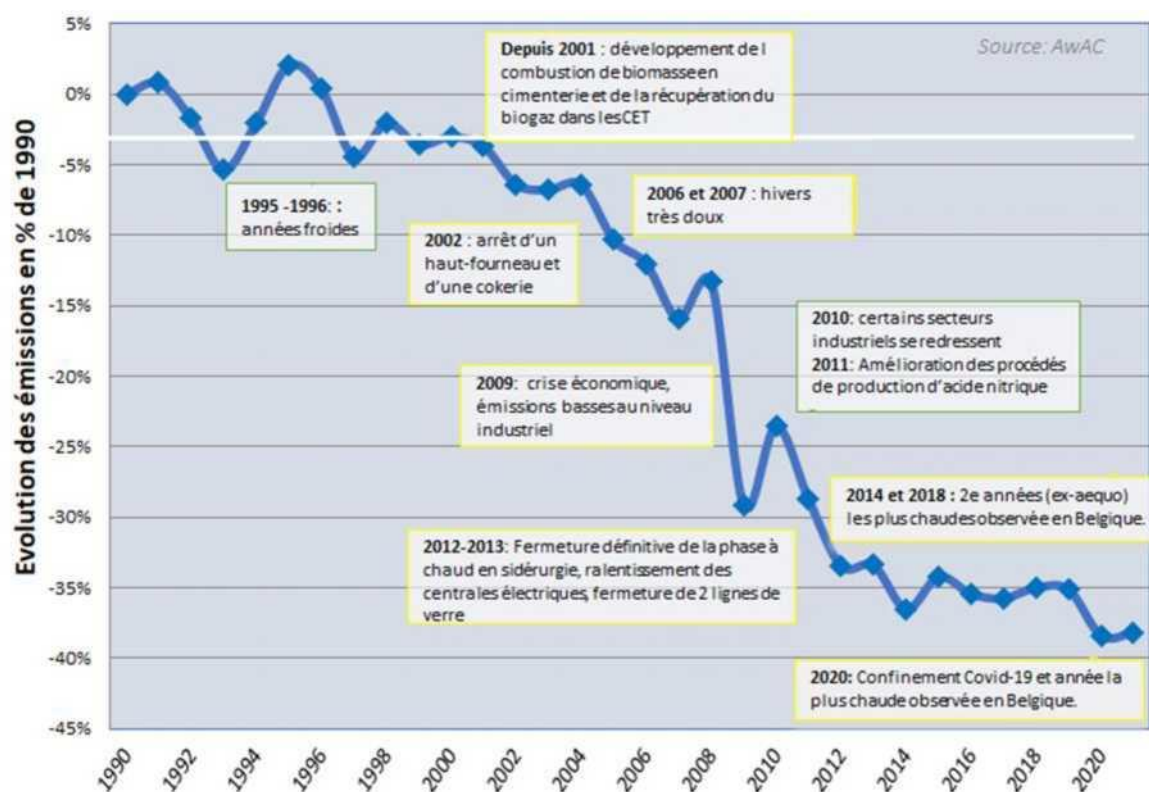


Figure 6: Trends in total GHG emissions in Wallonia, including ETS and ESD sectors (Source: AWAC)

The overall development is the result of very mixed trends across sectors. Industry and power generation are the main emission reduction factors, unlike transport and (other) fluorinated gases, whose emissions have increased since 1990.

The high inter-annual variability of emissions is generally due to the combination of several factors. The figure lists some historical events whose impact on annual emissions has proven to be significant.

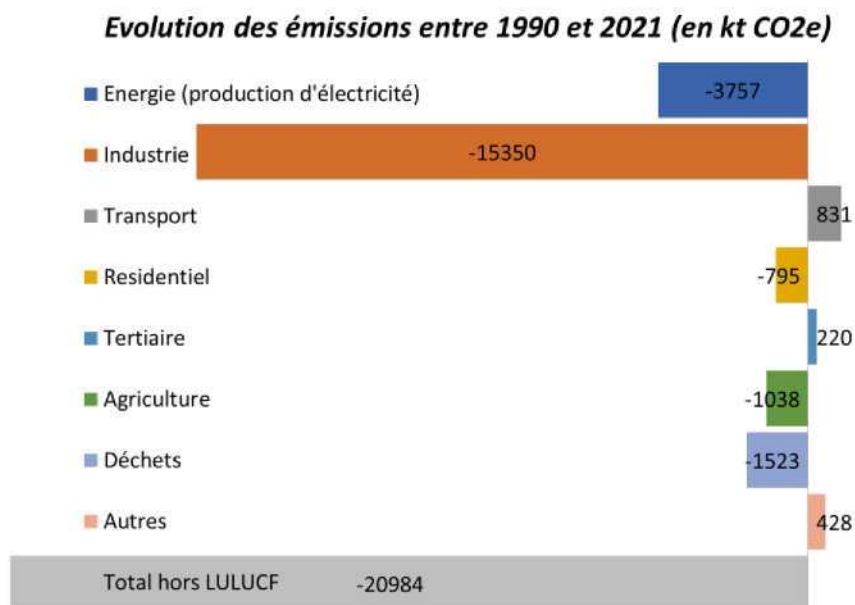
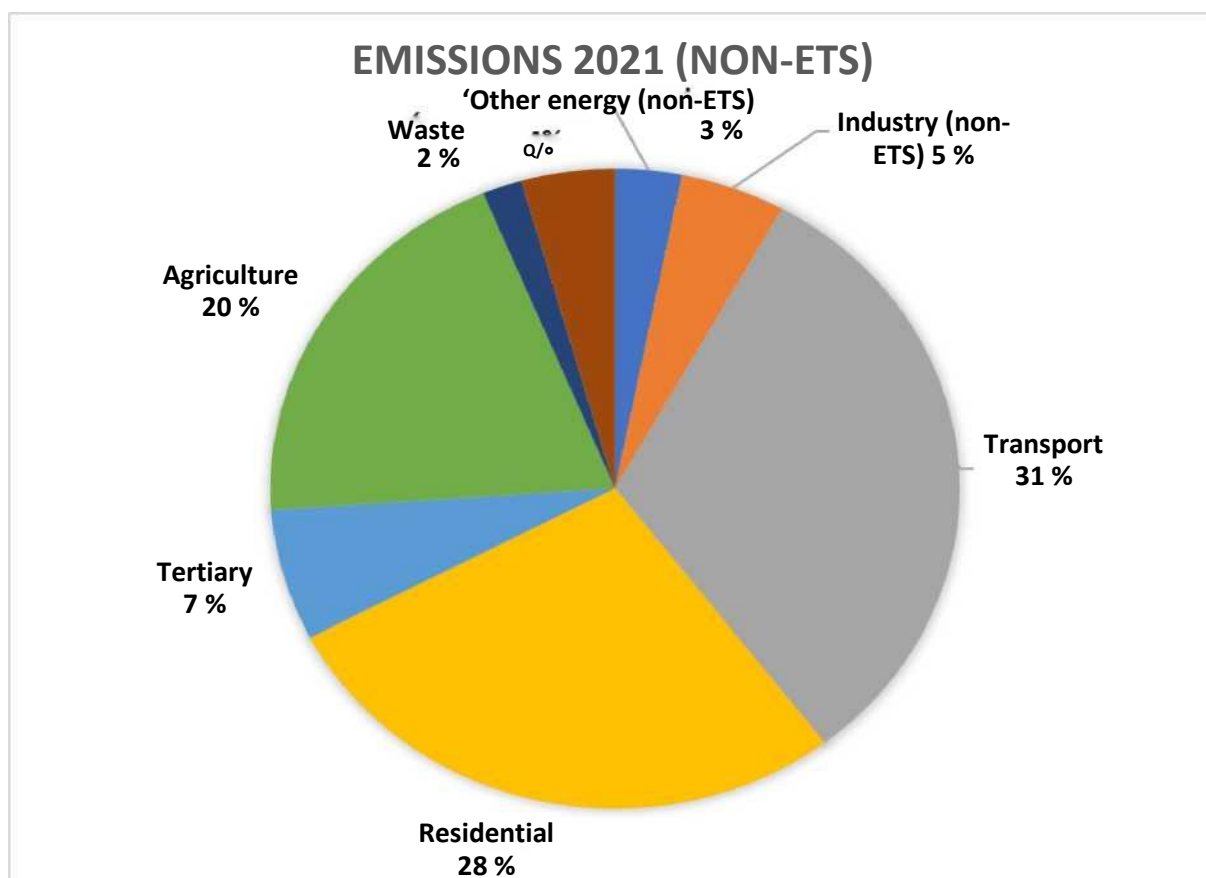


Figure 7: Changes in GHG emissions by sector of activity in Wallonia (kt CO₂eq between 1990 and 2020; AWAC source)

Emissions from non-ETS sectors covered by this plan in 2021 were as follows:



II. Projections of sectoral developments with existing EU and national policies and measures up to at least 2040 (including 2030)

Table 2 *Greenhouse gas trends by sector (WEM scenario)*

	2005	2010	2015	2019	2020	2021	2025	2030
Total excluding LULUCF	145,4	133,6	119,0	116,5	107,3	111,0	112,1	106,7
LULUCF total included	143,7	133,3	118,1	116,0	106,9	110,6	111,4	105,6
ETS (ETS scope 2013-2020)	66,5	54,8	44,7	44,6	41,5	41,4	44,0	42,7
ESR (ETS scope 2013-2020)	78,9	78,8	74,3	71,9	65,8	69,5	68,1	64,0
LULUCF	- 1,8	- 0,4	- 0,9	- 0,5	- 0,3	- 0,3	- 0,7	- 1,1

Source: Belgian FIU report (15/03/2023) for 2005-2021; compilation of regional and federal projections for 2025-2030.

Total greenhouse gas emissions (excluding LULUCF) increased from 145 Mt CO₂-eq to 111 Mt CO₂-eq, a reduction of 24 % between 2005 and 2021 (

Table 2 *Greenhouse gas trends by sector (WEM scenario)*. This decrease is this is mainly due to the 38 % reduction in ETS emissions in 2021 compared to 2005. ESR emissions were reduced by 12 % over the same period. Belgium's total LULUCF emissions decreased by 82 % between 2005 and 2021, but it is still a carbon sink in 2021.

Under the WEM scenario, total greenhouse gas emissions (excluding LULUCF) are projected to decrease to 107 Mt CO₂-eq (-27 % compared to 2005) between 2021 and 2030. This decrease compared to 2005 is explained by a 36 % decrease in ETS emissions in 2030 compared to 2005, mainly in the period 2005-2015. ESR emissions in the WEM scenario show a moderate change, ranging from a reduction of 12 % (in 2021) to 19 % (in 2030) compared to 2005. Belgium's LULUCF emissions balance remains a carbon sink even after 2021, increasing again between 2021 and 2030.

Table 1 *Greenhouse gas trends by IPCC sector (WEM scenario)*
MtCO₂-eq.

	2005	2010	2015	2019	2020	2021	2025	2030
1 energy	105,8	99,6	87,1	85,5	78,1	82,1	84,1	79,9
1a fuel consumption	105,0	98,8	86,4	84,8	77,4	81,4	83,4	79,2
1A1 energy industries	29,0	26,1	20,8	21,0	19,0	18,2	19,2	18,0
1A2 manufacturing and construction industries	18,9	16,0	13,8	13,9	13,3	14,0	14,9	14,8
1A3 transport	26,7	26,7	26,9	26,0	21,7	23,9	25,5	23,2
1A4 other sectors	30,1	29,9	24,7	23,9	23,3	25,3	23,7	23,1
1A5 other	0,2	0,1	0,1	0,1	0,1	0,1	0,1	0,1
1b fugitive emissions from fuels	0,8	0,8	0,7	0,7	0,7	0,7	0,7	0,7
2 industrial processes and product use	26,5	21,7	20,5	19,9	18,4	18,2	17,6	16,8
3 agriculture	9,9	9,7	9,7	9,6	9,5	9,4	9,3	9,1
4 LULUCF	- 1,8	- 0,4	- 0,9	- 0,5	- 0,3	- 0,3	- 0,7	- 1,1

5 pieces of waste	3,2	2,6	1,7	1,4	1,3	1,3	1,1	0,9

Source: Belgian FIU report (15/03/2023) for 2005-2021; compilation of regional and federal projections for 2025-2030.

At sectoral level, there is a 22 % decrease in energy-related emissions (IPCC sector 1) between 2005 and 2021. This decrease is reflected in the energy sub-sectors (mainly power plants, refineries and coking plants), industry, heating of buildings (i.e. 'other sectors') and transport. Industrial process emissions fell by 31 % in 2021 compared to 2005, largely due to a decrease in activity in the steel sector. (Non-energy) emissions from agriculture show a limited decrease of 5 % over the period 2005-2021. The 61 % decrease in emissions in the waste sector in 2021 compared to 2005 is mainly due to the reduction of methane emissions from landfills.

In 2030, the WEM scenario foresees a limited decrease in energy-related emissions compared to 2021. In the energy sector, a rather limited decrease is expected in 2030 due to the reduction of nuclear capacity, partly compensated by gas-fired power plants. To a lesser extent, emissions in the transport and industry sectors are expected to increase until 2025 in the WEM scenario, while emissions from buildings continue to decrease gradually over the period 2021-2030. Industrial process emissions and agricultural emissions show relatively limited reductions between 2021 and 2030, with -37 % and -8 % respectively in 2030 compared to 2005. Waste emissions continue to be on a downward trend by 2030.

Table 2 Evolution of greenhouse gases by type of greenhouse gas, excluding LULUCF (WEM scenario) MtCO₂-eq.

	2005	2010	2015	2019	2020	2021	2025	2030
CO ₂	125,6	114,6	101,1	99,5	91,1	95,7	98,0	93,8
CH ₄	9,6	9,1	8,5	8,1	8,0	7,9	7,5	7,1
NO ₂ O	7,5	6,7	5,3	4,9	4,8	4,7	4,6	4,5
F-gassen	2,6	3,2	4,0	4,0	3,4	2,7	2,0	1,2

Source: Belgian FIU report (15/03/2023) for 2005-2021; compilation of regional and federal projections for 2025-2030.

At the level of greenhouse gas types, reductions can be observed for CO₂, CH₄ and N₂O over the period 2005-2021, of 24 %, 18 % and 37 % respectively in 2021 compared to 2005. Only an increase of 2 % is observed for F-gases in the same period. This is largely due to the increase in the use (and thus emissions) of F-gases. This is mainly due to the cessation of the use of ozone-depleting substances in refrigeration plants, for which F-gases have long been the most obvious alternatives. However, a downward trend has started in recent years.

A limited reduction in CO₂ emissions from 96 Mt CO₂-eq to 94_{MtCO2}-eq is expected between 2021 and 2030 and is due to a limited decrease in energy-related emissions (see also the **cost! Verwijzingsbron niet gevonden.**). The continued decrease in methane emissions is largely due to changes in landfills and agricultural emissions (see also the **outage! Verwijzingsbron niet gevonden.**). Nitrous oxide emissions are also decreasing in the period 2021-2030. Between 2021 and 2030, the downward trend in F-gas emissions is expected to continue. Due to the strengthening of EU regulations and policies in Belgium, the use of F-gases with very high GWP should be phased out in favour of environmentally friendly alternatives and F-gases with a more limited negative climate impact.

Table 3 Evolution of ESR emissions by IPCC sector (WEM scenario)
MtCO₂-eq.

Mton CO ₂ -eq	2005	2010	2015	2019	2020	2021	2025	2030
1 energy	63,4	63,2	58,3	56,5	51,6	56,0	55,5	52,6
1a fuel consumption	62,7	62,5	57,6	55,9	51,0	55,4	55,0	52,1
1A1 energy industries	1,5	1,6	1,9	2,1	2,3	2,3	2,1	2,2
1A2 manufacturing and construction industries	4,5	4,4	4,2	4,1	3,8	4,0	3,8	3,7
1A3 transport	26,6	26,5	26,8	25,8	21,6	23,8	25,3	23,0
1A4 other sectors	30,0	29,8	24,6	23,8	23,3	25,2	23,7	23,1
1A5 other	0,2	0,1	0,1	0,1	0,1	0,1	0,1	0,1
1b fugitive emissions from fuels	0,7	0,7	0,6	0,6	0,6	0,6	0,6	0,6
2 industrial processes and product use	2,8	3,9	4,8	4,6	3,6	3,1	2,5	1,7

3 agriculture	9,9	9,7	9,7	9,6	9,5	9,4	9,3	9,1
4 LULUCF								
5 pieces of	2,7	2,0	1,4	1,2	1,1	1,0	0,8	0,6

Source: Belgian FIU report (15/03/2023) for 2005-2021; compilation of regional and federal projections for 2025-2030.

The 12 % reduction in ESR emissions between 2005 and 2021 can be largely attributed to reductions in emissions from buildings (i.e. ‘other sectors’), waste emissions (in particular methane emissions from landfills, see above) and transport emissions. Between 2021 and 2030, energy-related emissions fell further by 6 % in the WEM scenario. This is due to limited decreases in all sub-sectors. Emissions from industrial processes decrease from 3.1 Mt CO₂-eq in 2021 to 1.7 Mt CO₂-eq in 2030 in the WEM scenario. This decrease is mainly due to the decrease in F-gas emissions (see also the **cost! Verwijzingsbron niet gevonden.**). As explained above, waste emissions are also decreasing by 2030.

Flemish Region

See Chapter 5

Region Walloon

The integrated energy and climate projections presented are based on the results of the TIMES Wallonia economic optimisation model³⁷¹ for the following sectors: residential, tertiary, transport, energy, industry. For non-energy emissions, specific tools are used (in particular for agriculture).

Existing policies and measures are integrated into the model on the basis of analysis of existing data (databases, impact assessments carried out under Article 7 of the Energy Efficiency Directive, etc.). Additional constraints may be added to the model to capture the behaviour of end users and potential impediments to investments.

The charts below show, since 1990, the evolution of GHG emissions from all sectors of activity and point to a constant policy evolution.

³⁷¹ Times is an integrated optimisation tool, it is an ‘ideal’ representation of the choices that should be made in a perfect world (i.e. in a world we have a perfect knowledge of the costs and characteristics of the different technologies throughout the modelled period) in order to make choices that result in an economic optimum (minimisation of the overall cost). Since 2016, Wallonia has been developing its TIMES model (‘TIMES-Wal’). Wallonia now has a model by 2050, which takes account of the specific characteristics of Wallonia and which modulates all energy sectors (residential, tertiary, industry, transport, electricity production, etc.). The model allows the construction of integrated energy and climate scenarios. These scenarios can either be left fairly “free” (i.e. reflecting the effect of time on the energy landscape if “only the economic interest” prevails) or more forcefully for reporting purposes (scenario with existing “WEM” measures and scenario with additional “WAM” measures).

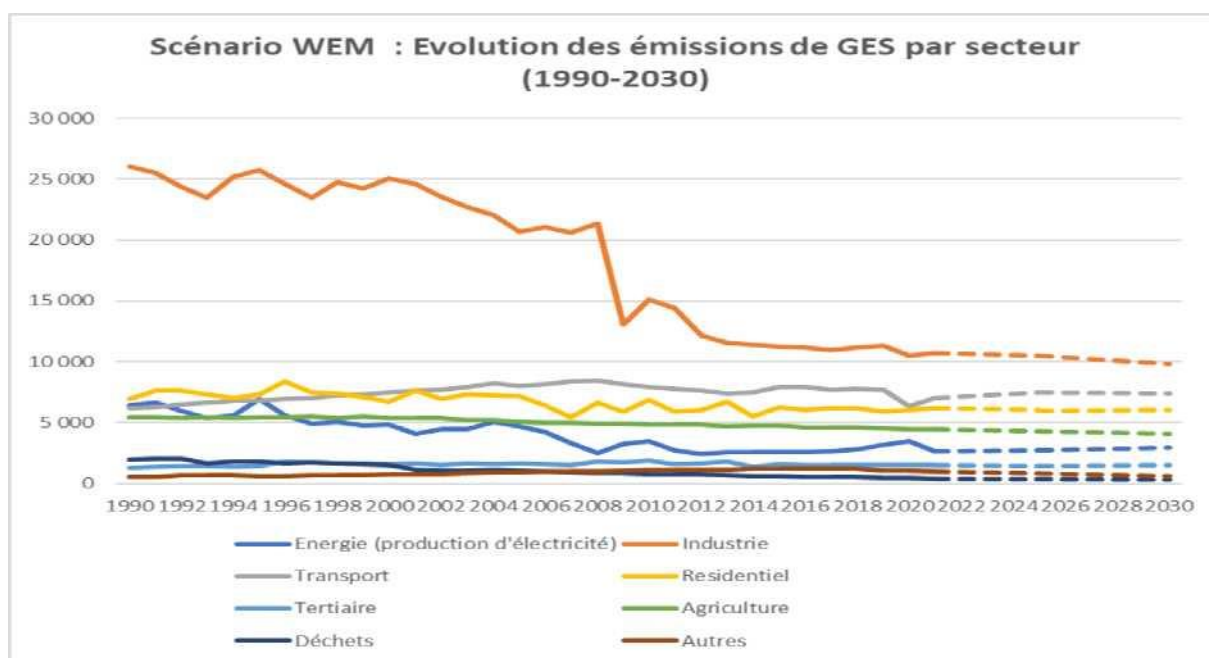


Figure 8: Sectoral trends in greenhouse gas emissions according to the reference scenario (WEM) (1990-2030)

WEM scenario: Changes in GHG emissions (1990; 2005; 2021; 2030)

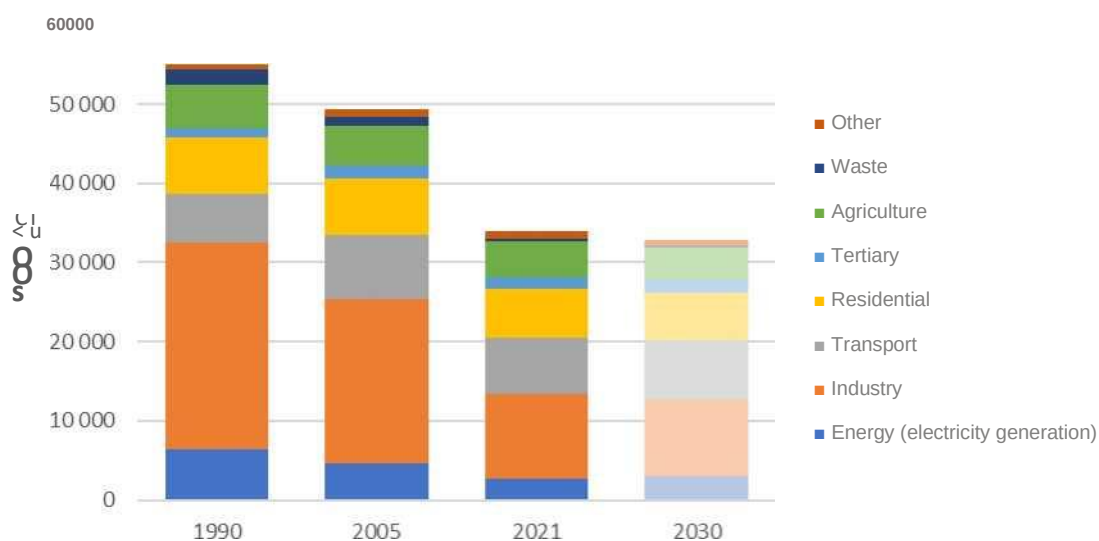


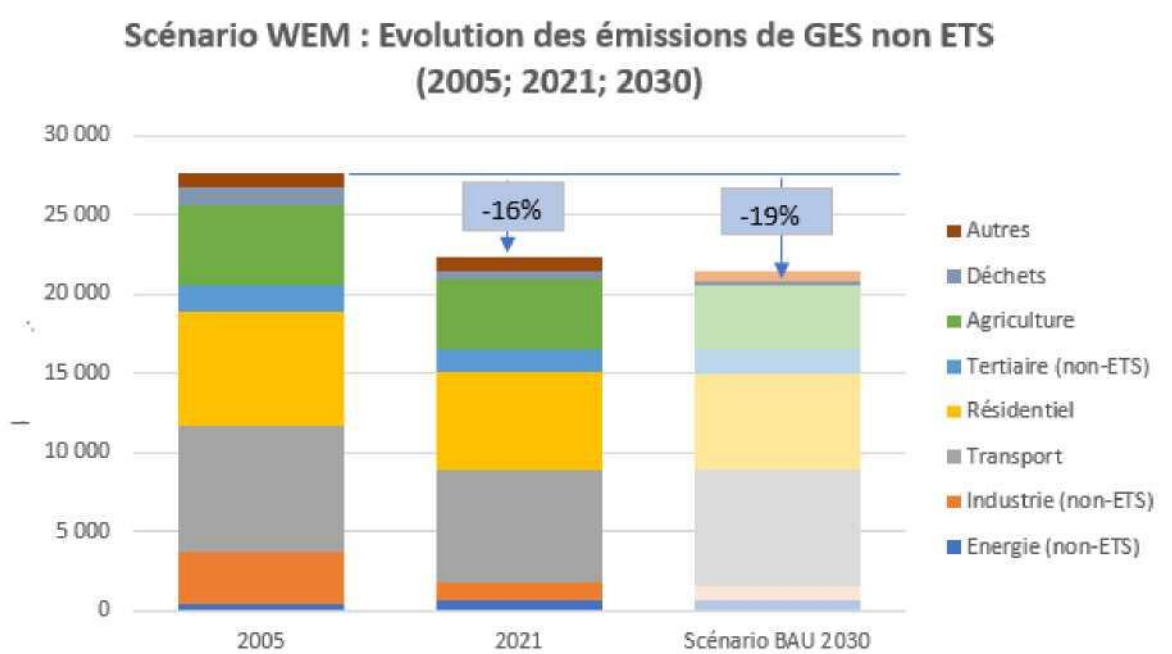
Figure 9: Overall trend in total greenhouse gas emissions (ETS + ESR) under the reference scenario (WEM) (1990; 2005; 2021; 2030)

Without additional measures, emissions will remain relatively stable between 2021 and 2030. More specifically, by sector:

- **Residential:** despite a growth in the housing stock, emissions are moderate due to improvements in existing housing driven by some existing measures (e.g.: bonuses, etc.);
- **Tertiary:** despite an increase in activity, emissions are moderate, in particular, by improving the energy performance of certain buildings as a result of some existing measures (e.g. financing the renovation of public buildings, etc.);

- **Industry:** with activity constant or slightly increasing depending on the sector, emissions are decreasing driven by various mechanisms such as technical and financial support, investment aid, sectoral agreements, European quotas, etc.;
- **Transportation:** the upward trend in mobility (with a relatively stable modal split) leads to a moderate increase in emissions with unchanged policy;
- **Production of Electricity:** slight increase in emissions linked to the Walloon production park and import/export assumptions, despite an increase in renewable energy;
- **Agriculture:** past trends in livestock trends and mineral fertiliser application are continued;
- **Other sectors:** waste emissions are decreasing, F-gas emissions are gradually decreasing to comply with existing legislation.

Non-ETS emissions decrease in the scenario with existing measures by 19 % compared to 2005 (i.e. a



slight decrease compared to the reductions already achieved in 2021, i.e. -16 %).

ktCO2 eq

Figure 10: Overall trend in non-ETS greenhouse gas emissions according to the reference scenario (WEM) (2005; 2021; 2030)

4.2.2. Renewables

1. Share of renewable energy in gross final energy consumption and in different sectors (heating and cooling, electricity and transport) and by technology in each of these sectors

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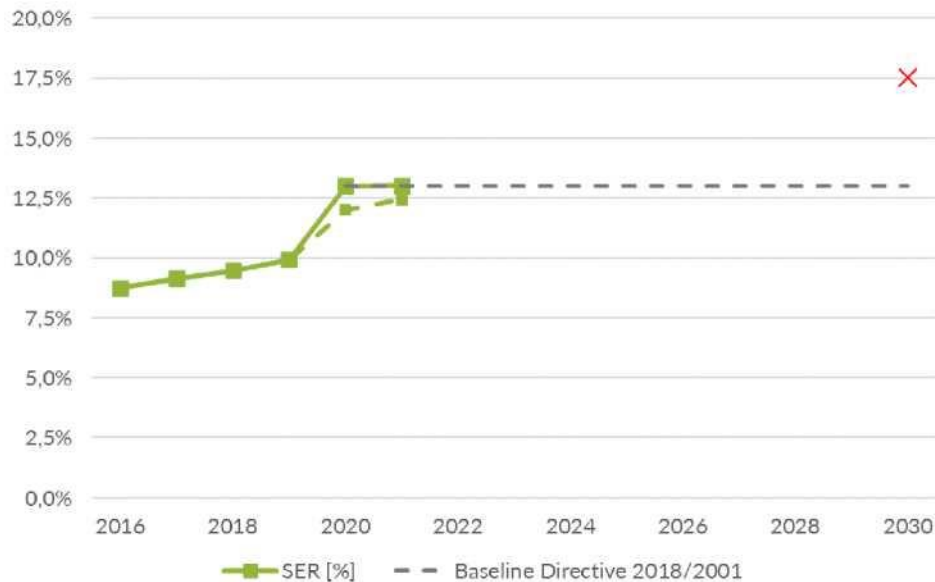


Figure 8: Share of renewable energy sources (RES) in final energy consumption,% Source: FPS Economy, Key Energy Data, February 2023 edition

Up to and including 2020, the determination of the RES share was based on the calculation rules laid down in Directive 2009/28. Since 2021, the calculation rules of Directive 2018/2001 have applied.

In 2021, the share of renewable energy in final energy consumption was 12.44 % (green dotted line). That percentage is lower than the minimum required or 'baseline' value of 13 %, imposed by Directive 2018/2001. In order to close the gap, energy from renewable sources was purchased, as in 2020, from other Member States. These purchases bring the share of renewable energy in final energy consumption to 13.01 % (full line).

Region Walloon

La figure suivante montre l'évolution de la part du renouvelable en Wallonie depuis 1990.

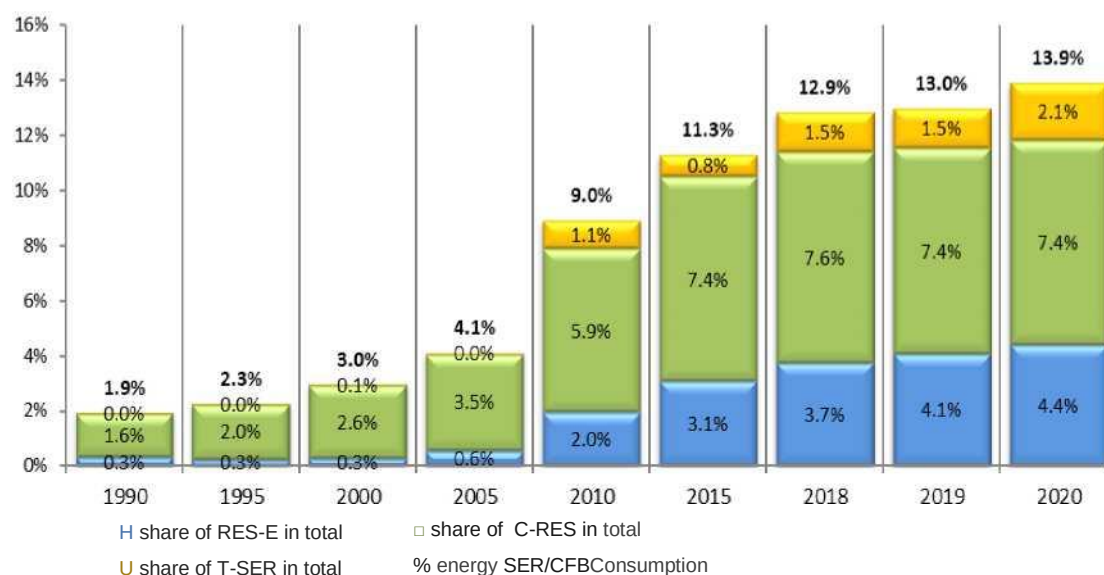


Figure 11: Trend 1990-2020 in the share of gross renewable energy in total gross final consumption as defined in Eurostat SHARES methodology

With 13.9 % achieved in 2020 (or 17.089 GWh of renewable energy), Wallonia exceeds³⁷² its 2020 targets.

It can be seen that the share of renewable electricity in the overall target is growing (less than 1 % of the total before 2005, 4.4 % in 2020), that renewable transport fell in 2015, followed by a further increase, and finally that the largest contribution comes from renewable heat with 7.4 %.

11. Indicative projections of developments on the basis of existing policies for 2030 (with outlook for 2040)

Table 2 Share of renewable energy sources in gross final energy consumption, total and by sector (WEM scenario) %

	2005	2010	2015	2020	2021	2025	2030
RES	2,3	6,0	8,1	13,0	13,0	12,0	14,7
RES-E	2,4	7,3	15,6	25,1	26,0	27,9	36,5
RES-T	0,7	4,8	3,9	11,0	10,3	13,3	16,7
RES-H & c	3,4	6,7	7,9	8,4	9,2	8,2	9,4

Source: Eurostat and SHARES results for 2005-2021; compilation of regional and federal projections for 2025-2030.

The share of renewable energy sources (RES or RES) increased over the period 2005-2021, from 2.3 %

³⁷²As part of Belgium's commitments to the European Union with regard to renewable energy, 13 % in 2020, a distribution between the regions and the federal government was decided in December 2015. Wallonia was given a target of 14 850 GWh of production from renewable energy sources in 2020. Furthermore, in a decree, Wallonia decided to go further and reach 15 600 GWh of production from renewable energy sources in 2020.

in 2005 to 13.0 % in 2021. In 2020, Belgium reached the binding target of 13 %.

The pace of change varies from one sector to another. Growth is particularly important in the electricity sector, where the RES (RES-E) share increased from 2.4 % in 2005 to 26.0 % in 2021. RES shares for heating and cooling (RES H & C) and transport (RES-T) are also increasing, but at a lower rate: from 3.4 % in 2005 to 9.2 % in 2021 for heating and cooling, and from 0.7 % in 2005 to 10.3 % in 2021 for transport.

The increase in RES-E is mainly due to the development of wind and solar PV. Gross final electricity demand remains relatively stable between 2005 and 2021.

The trend in RES-T between 2005 and 2021 comes primarily from biofuels. The contribution of renewable electricity for rail and road transport remains marginal. In 2020, Belgium reached the 10 % renewable target in transport.

Finally, despite the strong growth of heat pumps between 2005 and 2021, the increase in RES-H & C is mainly due to biomass. In addition, there has been a small decrease in energy consumption for heating (-5 % between 2005 and 2021).

Projections with existing measures show an increase in renewable energy shares (total share and by sector) in 2030 compared to 2021. The share of renewable energy increased from 13.0 % in 2021 to 14.7 % in 2030.

Growth is particularly marked for RES-E, mainly reflecting the significant increase in electricity generation using wind turbines (onshore and offshore).

For RES-T, the projection is around 16.7 % in 2030, thanks to biofuels and increased use of electric vehicles.

Among the RES sectors, the RES-H & C sector shows relative stability between 2021 and 2030.

Flemish Region

See Chapter 5

Region Walloon

The share of renewable energy sources (RES) increases from 13 % in 2019 to 16 % in 2030 in an unchanged policy scenario. This slight upward trend continues until 2040.

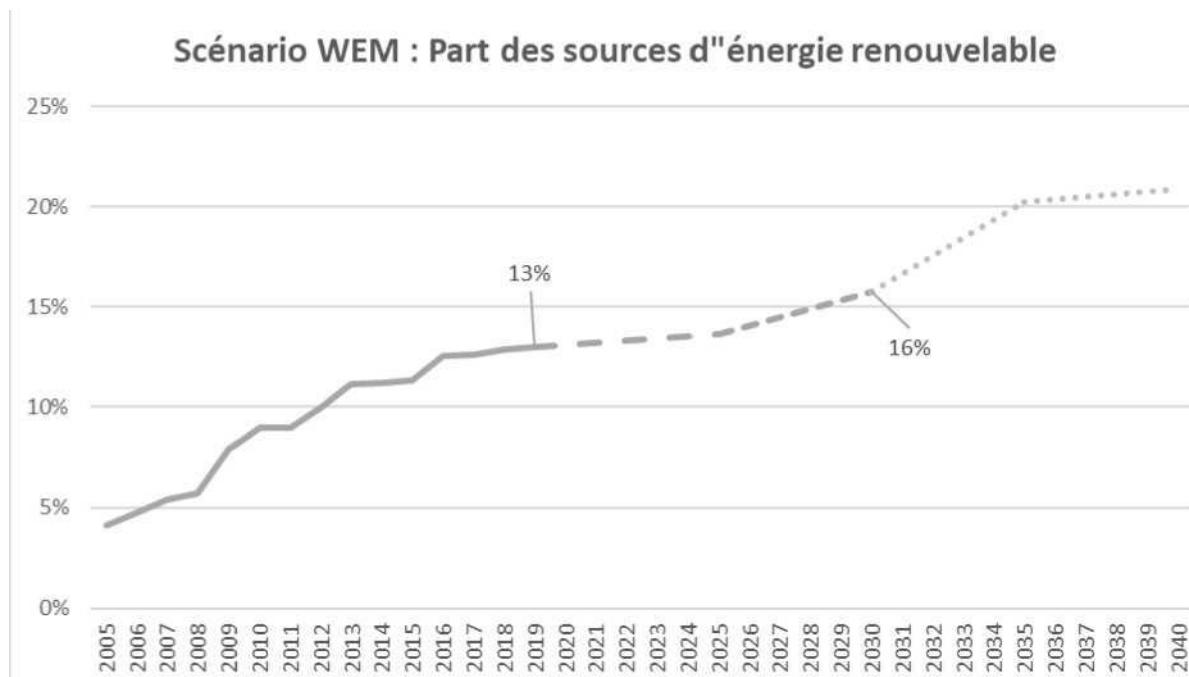


Figure 12: Trend in the share of renewable energy sources in the WEM (2005-2040), 2005-2020: energy balance; 2021-2040: results of the TIMES model

The pace of change varies depending on the sector and the sector.

As regards the production of **renewable electricity**, in particular under the influence of the green certificates mechanism, renewable electricity production is growing by 2030. This trend continues until 2040, thanks in particular to the evolution of the costs of certain technologies.

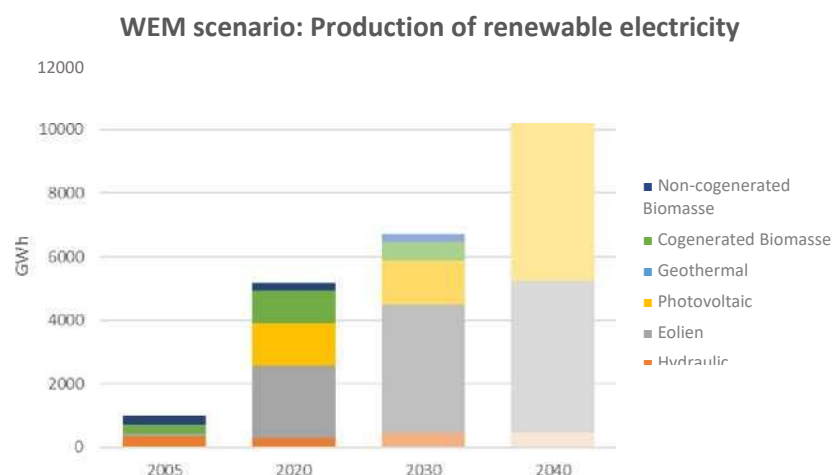


Figure 13: Production of renewable electricity by sector (WEM) – 2005 and 2020: energy balance; 2030 and 2040: results of the TIMES model

Renewable electricity production focuses mainly on wind and photovoltaic.

Renewable heat production shows slight growth in 2030 and 2040, mainly thanks to the use of biomass (the growth of heat pumps is limited in a no-policy scenario with limited deep renovations).

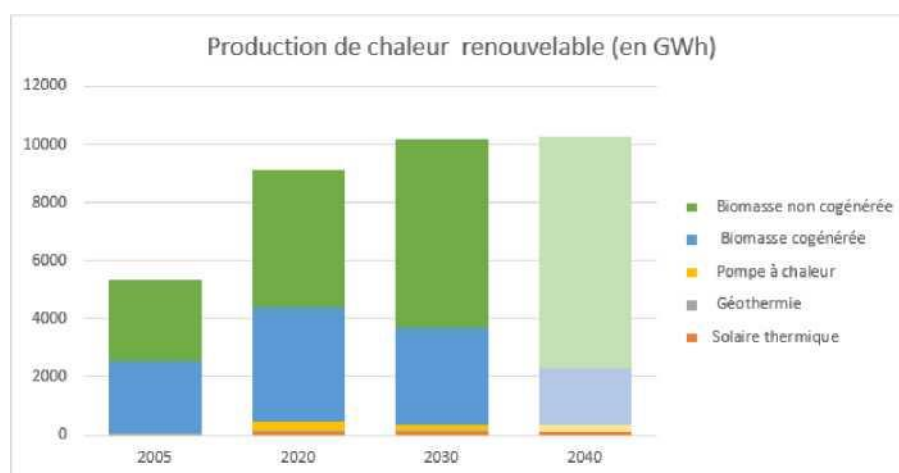


Figure 14: Production of renewable heat by sector (WEM) – 2005 and 2020: energy balance; 2030 and 2040: results of the TIMES model

4.3. Energy efficiency dimension

- i. *Current primary and final energy consumption in the economy and by sector (including industry, residential, services and transport)*

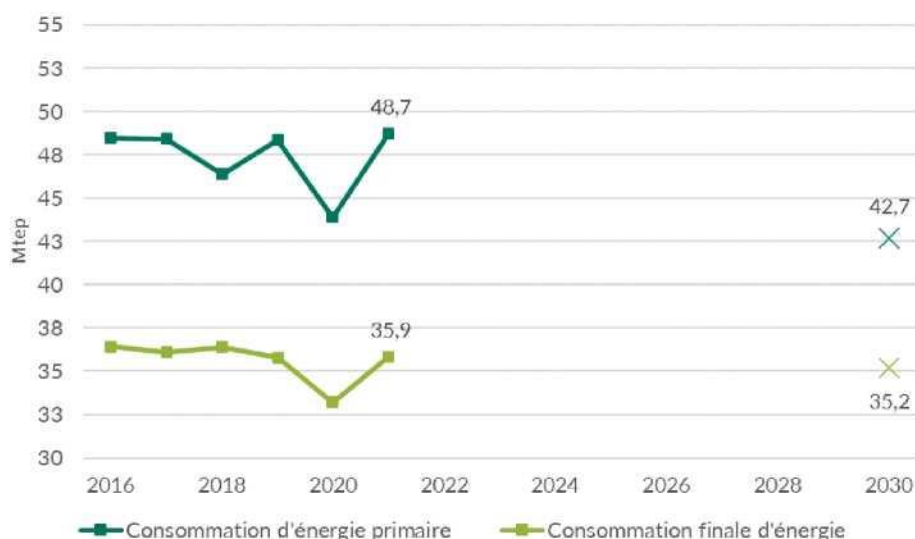


Figure 9: Monitoring indicative energy efficiency targets in Mtoe

Source: FPS Economy, Key Energy Data, February 2023 edition

Directive 2012/27/EU on energy efficiency as amended by Directive 2018/2002 resulted in Belgium setting an indicative target of 42,7 Mtoe of primary energy consumption and 35,2 Mtoe of final energy consumption in 2030.

Region Walloon

The graph below shows that, overall and since 2004, we have used less energy every year. Wallonia's gross inland consumption amounted to 162 TWh in 2020, a decrease of 11 % compared to 2019 and a decrease of 22 % compared to 1990. We see that this decrease in consumption is affecting nuclear production from 65 TWh in 1990 to 40 TWh in 2020. This decrease in the nuclear share is partly offset by the rise in renewable energies.

The main explanations for the evolution of gross final consumption in 2020 compared to 2019 are: a decrease in the consumption of nuclear fuel, a decrease in the consumption of petroleum products due to the COVID crisis which slowed down the pace of production in the economy and transport

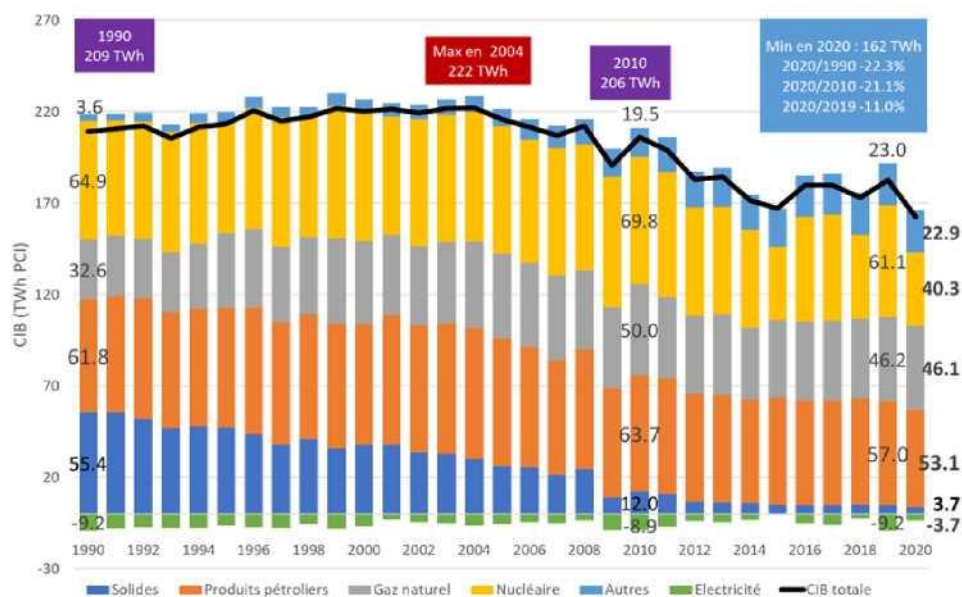


Figure 15: Evolution of gross inland consumption by vector between 1990 and 2020

The graph shows that 2015 is the only year with an import balance in electricity since 1990. This means that Wallonia did not produce more electricity than needed in that year and that in total it had to buy electricity from neighbouring countries. In 2020, there was again an electricity exporter balance in Wallonia for 4 TWh.

The following graph shows the evolution of **final consumption** since 2005. Final consumption (excluding non-energy use) decreased by 16 % in 2019 compared to 2005 (and by 20 % in 2020 as a result of the COVID crisis, particularly affecting lower consumption by transport and industry).

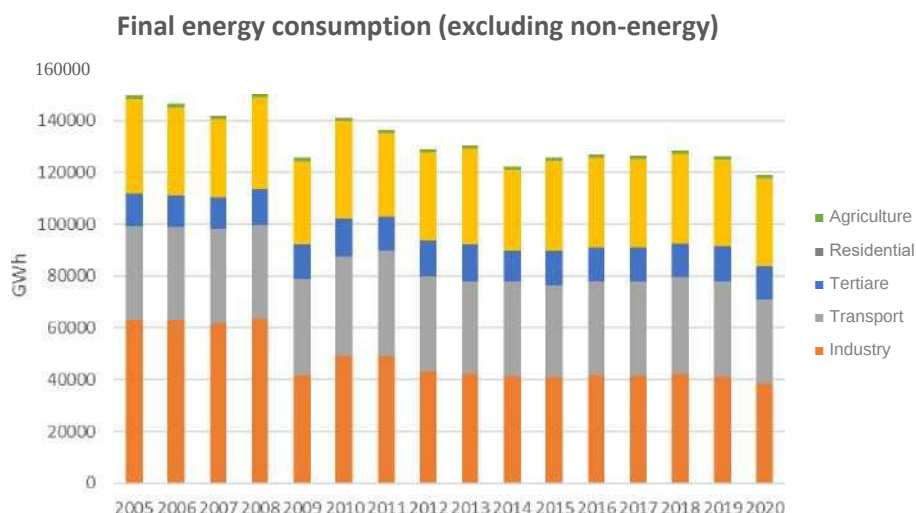


Figure 16: Trend in final energy consumption (excluding non-energy uses; based on the new methodology for accounting for heat from cogeneration) by sector (2005-2020)

The bulk of consumption is spread across three sectors: industry, transport and buildings (combined tertiary and residential).

From a chronological point of view, while *industry* continues to be the largest energy consumer at home, it is only 32 % of this final consumption, while we were at 42 % in 2005 (and more than half in 1990). This decrease is responsible for a shift in the consumption of solid fuels. Indeed, the majority of these fuels were used in the steel industry. In addition, given the significant CO₂ emissions associated

with this type of fuel, it was the removal and/or replacement of these energy sources that the industries used them as a priority.

We then note that *transport*, which accounted for only 24 % of energy consumption in 2005, currently consumes 30 % of the energy used at home, in particular as a result of an increase in the consumption of petroleum products.

The *tertiary* sector is the sector that experienced the largest increase in consumption since 2005 (around + 10 %), while consumption in the *residential* sector (excluding climate effects) is declining slightly.

ii. Current potential for the application of high-efficiency cogeneration and efficient district heating and cooling (1)

Flemish Region

The use of district heating in Flanders is historically very low. An important role is attributed to the further development of heating networks in Flanders. However, since the introduction in 2013 of financial support through regular tenders for green heat, waste heat, district heating and geothermal energy, a significant number of new projects have been carried out and are still planned.

Approximately 1.100 GWh of heat is produced per year from existing heat networks. Based on the projects submitted under the various calls, an estimated 1 300 GWh of additional heat to be supplied via district heating networks by 2030, including around 700 GWh of green heat. In 2021, 47 % of the heat supplied by these heat networks was supplied by renewable energy.

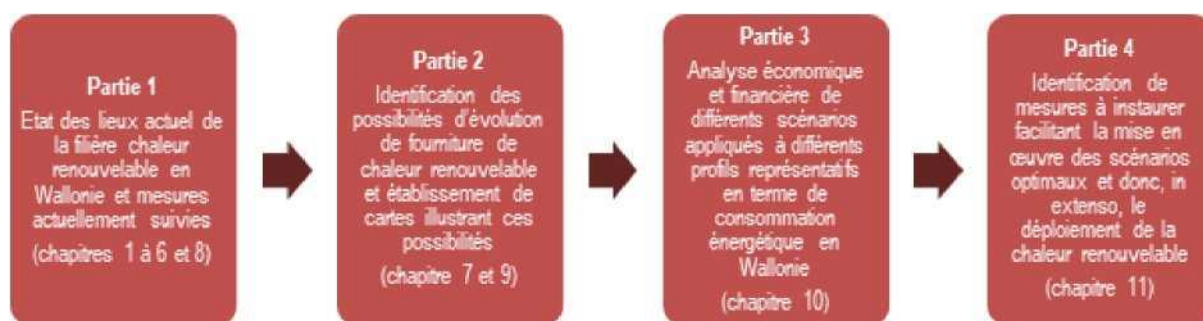
With a total capacity of 2173 MWe in 2021 (3424 MWth) in Flanders, the application of cogeneration is relatively high. In 2021, around 10 % of total cogeneration production came from renewable energy sources.

Region Walloon

Background

On 11 March 2021, the Walloon Government approved a strategy drawn up by the SPW TLPE entitled 'Strategy for district heating and cooling supplied by cogeneration, fossil energy or renewable energy sources'. This document fulfils the obligation to carry out an analysis under Article 14, Energy Efficiency Directive 2012/27, while incorporating a long-term strategic vision, and has been published at the following address: <https://energie.wallonie.be/fr/une-strategie- pour un consommateur-a-chauffage, plus durable-en-Wallonie.html? IDC = 6238 & IDD = 152026>.

The methodology used consists of 4 steps:



Potential analysis (extract from Chapter 9)

Various technologies, considered highly efficient, have been identified to meet Wallonia's energy needs for substitutable heat. These include waste heat, waste incineration, geothermal, solar thermal, cogeneration (gas and biomass), heat pumps, pellet and wafer boilers. Some of these technologies can provide heat on a centralised or decentralised basis. District heating is discussed as a type of heat distribution technology.

For each technology, the technical potential (established on the basis of the available resource taking into account operational constraints and the suitability of the intended consumption profile) and the share of current exploitation in relation to the technical potential shall be presented.

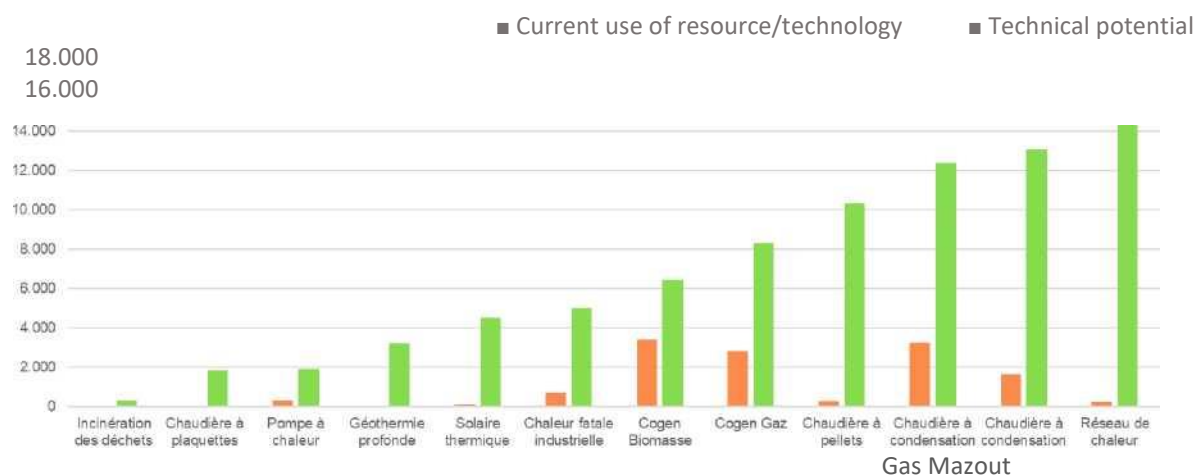
This analysis has made it possible to construct different scenarios by allocating the best suited technology mix to different consumption profiles. It is important to bear in mind that the different technical potentials per technology are not cumulative as all the technologies are operating on a competitive market.

The following table presents the conclusions on the technical potential available in Wallonia for each technology or heat resource identified, as well as their current uses and shares of the technical potential exploited. It is important to remember that the analysis is carried out on the basis of data from the Walloon energy balance for 2016, values available and validated at the time of implementation of this strategy.

Technology/Resources	Current operation (GWh)	Technical potential (GWh)	Share of technical potential currently exploited	Share of technical potential in heating needs	Share of technical potential in substitutable heating needs
Production technologies					

Heat industrial	fatal	682	5026	14 %	8.0 %	11.3 %
Incineration	fro	0	315	0 %	0.5 %	0.7 %
Deep geothermal energy		16	3226	0.5 %	5.1 %	7.3 %
Solar Thermal		114	4486	3 %	7.1 %	10.1 %
COGEN Gas		2799	8314	34 %	13.2 %	18.8 %
COGEN Biomasse		3421	6422	53 %	10.2 %	14.5 %
Heat pump		323	1914	17 %	3.0 %	4.3 %
Boiler	t	3233	12393	26 %	19.6 %	28.0 %
Boiler	t	1634	13044	13 %	20.6 %	29.4 %
Pellet boiler		271	10289	3 %	16.3 %	23.2 %
Platelet boiler		44	1819	2 %	2.9 %	4.1 %
Distribution technology						
District heating		237	16.712	1.4 %	26.4 %	37.7 %

Technical potential and current use of each resource/technology analysed



Gas and condensation oil boilers have been used as reference equipment for analysing technology mix scenarios.

The proportion of the technical potential in heating needs, calculated for heating networks, considers competition from the natural gas network already installed in Wallonia.

- iii. *Projections of existing energy efficiency initiatives, measures and programmes, as described in point 1.2 (ii), for the primary and final energy consumption of each sector until at least 2040 (including the year 2030) (2)*

Table 3 Primary and final energy consumption in the economy and by sector (WEM scenario)

	<i>ktoe</i>						
	2005	2010	2015	2020	2021	2025	2030
Primary energy consumption	51801	53622	45952	44206	49073	43589	41672
Final energy consumption	35358	36809	34550	32005	34504	35123	34451
Industry	10571	10954	10572	9995	10579	11455	11656
Residential	9144	9609	8198	7774	8435	7942	7651
Tertiary	5693	5818	5344	5255	5383	4993	4958
Transport	9884	10331	10357	8911	10043	10732	10181

Source: Eurostat (June 2023) for 2005-2021; compilation of regional projections for 2025-2030.

Note 1: **Final energy consumption (FEC)** includes international aviation and excludes ambient heat. Consumption of blast furnaces are not included.

Primary energy consumption (PEC) is gross inland consumption minus non-energy consumption and ambient heat

Note 2: The projected primary consumption of natural gas by the Belgian power park in 2030 has been quantified by the Federal Bureau of the
Plan based on the “National Trends” study of TYNDP 2020, prepared by ENTSOE and modelled in Artelys Crystal Supergrid. Capacity, final electricity consumption and fuel prices have been adjusted in the model according to the Belgian WEM scenario. The projection in 2025 is estimated on the basis of a linear interpolation of the load factor of gas-fired power plants.

Belgium’s primary energy consumption fell by 5 % between 2005 and 2021. In 2015, the low level of primary energy consumption compared to 2005 and 2010 was partly explained by the sharp decrease in nuclear energy production.

In addition, final energy consumption decreased by 2 % over the period 2005-2021³⁷⁴. The residential and tertiary sectors are mainly responsible for this downward trend: their energy consumption fell by 8 % and 5 % respectively. On the other hand, the energy consumption of industry is relatively stable and that of transport is increasing (+ 2 %).

Projections with existing measures show a general downward trend for primary energy consumption up to 2030 (-19 % in 2030 compared to 2005). The downward trend is mainly due to the implementation of the Nuclear Exit Law covering the period 2022-2036; the higher level in 2020 than in 2015 is linked to the availability of nuclear electricity generation capacity.

The projection of final energy demand with existing measures shows a trend of relative stability over the period 2021-2030. In 2030, final energy demand is 3 % lower than in 2005. The residential and tertiary sectors decrease their consumption between 2021 and 2030 (-9 % and -8 % respectively), while transport consumption is relatively stable and that of industry is growing by 10 %.

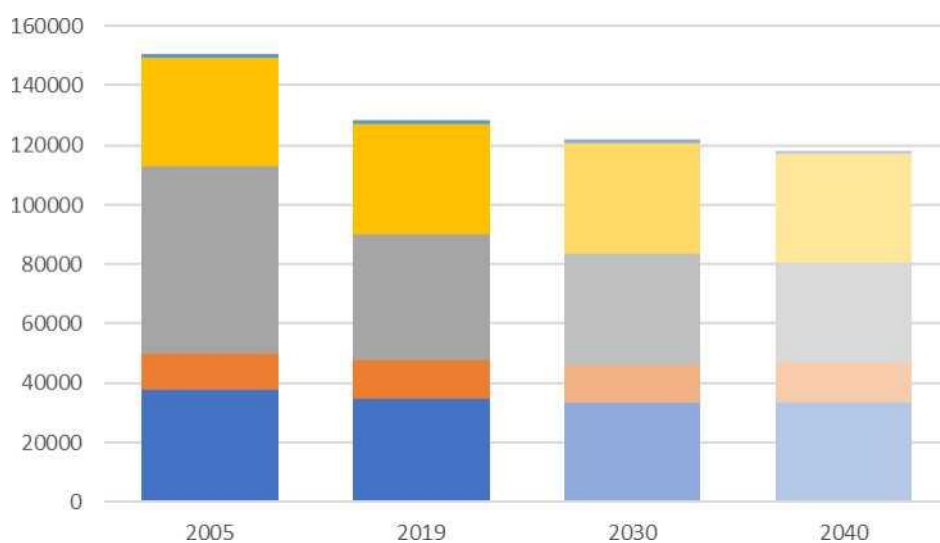
Flemish Region

³⁷⁴ The decreasing consumption in 2020 is due to the impact of the COVID crisis, which is particularly visible for transport and industry.

See Chapter 5

Region Walloon

Final energy consumption shows a slight downward trend compared to 2019³⁷⁵ until 2030 and 2040. This slight decrease is mainly due to the buildings (residential and tertiary) and industry sectors. Consumption in the transport sector is relatively stable, despite an upward trend in demand.



WEM scenario: Final energy consumption by sector

Primary energy consumption is moderately decreasing by 2030 and more strongly by 2040, driven by the closure of nuclear power plants, partly replaced by a higher level of imports.

■ Agriculture
■ Transport
■ Industry
■ Tertiary
■ Residential

- iv. *Cost-optimal levels of minimum energy performance requirements resulting from national calculations in accordance with Article 5 of Directive 2010/31/EU*

Figure 17: Evolution of final energy consumption by sector

³⁷⁵Figures are presented compared to 2019, with 2020 disrupted by COVID effects. As an indication, the final consumption of the reference scenario by 2030 is relatively comparable to that of 2020.

Flemish Region

Current cost-optimised EPB requirement levels for residential and non-residential buildings

In 2017, the VEKA again verified the feasibility of the planned reinforcement of the energy performance requirements in line with cost-optimal measures (see <https://www.vlaanderen.be/epb-pedia/epb-beleid/studies>). It was concluded that the additional cost of bringing single-family houses and apartments to level E30 remains limited for most of the defined sets of measures. These investment costs are largely recovered through lower energy bills, and can even lead to cost-optimal solutions, despite additional investment in construction. Some packages of measures could be more expensive only for non-compact large houses and with large glass surfaces and apartments (on the top floor) with many windows.³⁷⁶

For apartments, certain risks are indicated: With a high level of glazed surfaces, worse compactness and a possible lack of non-shaded roof surface, they could encounter problems with the E30 limit. Small apartments or studios with only one external façade may encounter difficulties in terms of overheating and cooling needs. The combination of “high height building with many small units” may therefore find it difficult to meet requirement E and the minimum share of renewable energy, despite its potential for very low absolute energy consumption.

On the basis of the study carried out and the evolution of the declarations actually submitted, level E30 was maintained from 2021 onwards for residential buildings.

A cost optimisation study was also carried out for non-residential buildings. The results of this study should be treated with caution due to the recent introduction of the PEN method and the lack of real experience and EPB statements. Based on the VEKA study and assessment, limited adjustments were made to levels E for non-residential buildings. A limited relaxation was introduced in 2021 for major energy renovations in kitchens and gyms. A limited tightening has been foreseen for a range of functions from 2022 onwards, both for major energy renovations and for new constructions.

Update of the Cost Optimisation Study on Tracking Route.

A new study on optimal costs for residential and non-residential buildings is ongoing, with the envisaged measures aligned with the new policies for phasing out fuel oil and gas and redirecting renewable energy requirements towards solar energy (see above). The results are expected in spring 2023. On the basis of these results and in the light of the ongoing revision of the EPBD, VEKA will prepare a proposal for the EPB requirements by 2030.

Region Walloon

Articles 4 and 5 of Directive 2010/31/EU on the energy performance of buildings require Member States to lay down the regulatory energy performance requirements with a view to achieving the cost-optimal balance between the investments to be made and the energy expenditure saved over the lifetime of the building.

The calculation of cost-optimal levels is governed by the methodological framework set by the Commission in order to be able to compare the performance of the different Member States in this

However, it³⁷⁶ should be stressed that this study does not take into account the default values anywhere. Indeed, it is always important to calculate in detail. This approach, of course, requires the necessary attention from all stages of the construction process. All those concerned will certainly also have a learning curve.

area.

The results and data used for the calculations shall be reported to the Commission at regular intervals not exceeding 5 years. These reports should enable the Commission to assess the progress made by Member States towards achieving cost-optimal levels of minimum energy performance requirements for buildings.

The first report (COZEB I) compared the optimal cost levels with requirements 2012 and 2014 and was sent to the Commission in 2013. The second report (Cost Optimum II) compared the optimal cost levels with requirements 2017 and 2021 (NZEB requirements). It was submitted in July 2018. The Government took note of these reports.

The update of cost-optimal levels will be communicated to the Commission in the next Cost Optimum III study report in 2023.

Conclusions of the Cost Optimum II study

As specified in the guidelines, the difference expressed in% between the cost-optimal levels and the current requirements is calculated for each reference building. This difference is weighted according to the representativeness of each of them. The sum of these weighted differences, divided by the number of buildings in the category in question, gives the weighted average difference between the requirements and the optimum cost level of each building. It is then checked that the requirements are not more than 15 % lower than the optimum cost level calculated for this category (deviations above - 15 % are shown in red in the tables below), i.e. our requirements are not ambitious enough. However, the Commission authorises the setting of requirements that are more ambitious than cost-optimal.

Existing buildings

Insulation of walls

U windows			
Category of reference buildings	Requirements 2021	Cost optimal	Weighted average deviation
Existing single-family houses	1,5	1,430	— 5 %
Existing apartment blocks		1,430	— 5 %
Existing offices		1,474	— 2 %
Existing school establishments		1,430	— 5 %

Table 6: Cost Optimum Fenêtre- Bât. Existing

The weighted average thermal transmission factor U of the flakes is in the order of 5 % better than the UMAX requirement (1,5 W/m²K) for all categories (residential and non-residential). This requirement is remarkably aligned with the optimal level of improvement (CO) and should not be strengthened.

U walls			
Category of reference buildings	Requirements 2021	Cost optimal	Weighted average deviation
Existing single-family houses	0,24	0,218	— 13 %
Existing apartment blocks		0,224	— 11 %
Existing offices		0,184	— 33 %
Existing school establishments		0,240	0 %

Table 7: Cost Optimum Murs- Bât. Existing

The weighted average U of the walls is close to the current UMAX requirement (0,24 W/m²K) for existing buildings, except for existing offices for which the weighted average deviation is -33 %.

U roofs			
Category of reference buildings	Requirements 2021	Cost optimal	Weighted average deviation
Existing single-family houses	0,24	0,225	— 9 %
Existing apartment blocks		0,235	— 2 %
Existing offices		0,219	— 10 %
Existing school establishments		0,203	— 19 %

Table 8: Cost optimal Toits- Bât. Existing

The weighted average U of the roofs is close to the current U_{MAX} requirement (0,24 W/m²K) for existing buildings, with the exception of existing schools for which the weighted average deviation is - 19 % and could be strengthened. However, the optimal values obtained for the reference buildings are systematically below requirement level 2021.

U Soil			
Category of reference buildings	Requirements 2021	Cost optimal	Weighted average deviation
Existing single-family houses	0,24	0,229	— 7 %
Existing apartment blocks		0,420	16 %
Existing offices		0,259	6 %
Existing school establishments		0,240	0 %

Table 9: Cost Optimum sols- Bât. Existing

The weighted average U U is quite close to the U_{MAX} requirement in force (0,24 W/m²K) for all categories, except for apartment buildings for which the average optimum is significantly less demanding than the current requirement. Within this category, however, there is a wide disparity in optimum levels depending on the typologies studied. This requirement shall not be more than 15 % lower than the optimum cost level and shall not be reinforced.

New buildings

Insulation of walls

U windows			
Category of reference buildings	Requirements 2021	Cost optimal	Weighted average deviation
New single-family houses	1,5	1,418	— 6 %
New apartment buildings		1,430	— 5 %
New offices		1,430	— 5 %
New school establishments		1,430	— 5 %

Table 10: Cost optimal for new buildings

The weighted average U of the flakes is in the order of 5 % better than the U_{MAX} requirement in force (1,5 W/m²K) in all segments (residential, non-residential). This requirement is remarkably aligned with the optimal level of improvement and should not be strengthened.

U walls

Category of reference buildings	Requirements 2021	Cost optimal	Weighted average deviation
New single-family houses	0,24	0,200	— 20 %
New apartment buildings		0,150	— 60 %
New offices		0,220	— 9 %
New school establishments		0,200	— 20 %

Table 11: Cost Optimum Murs- building. New

The weighted average U of the external walls of new buildings is systematically more efficient than the UMAX requirement (0,24 W/m²K). Depending on the criteria and the need to review the requirements levels per component, the level may be increased to a level corresponding to the Cost Optimum or above.

U roofs			
Category of reference buildings	Requirements 2021	Cost optimal	Weighted average deviation
New single-family houses	0,24	0,180	— 36 %
New apartment buildings		0,200	— 20 %
New offices		0,200	— 20 %
New school establishments		0,200	— 20 %

Table 12 Cost optimal Toits- new buildings

The weighted average U of new roofs is systematically more efficient (around 20 % for offices, schools and apartment buildings, and up to 36 % for single dwellings) than the UMAX requirement in force (0,24 W/m²K). This level of requirement could be strengthened to align to the optimum level 0.20 W/m²K.

U Soil			
Category of reference buildings	Requirements 2021	Cost optimal	Weighted average deviation
New single-family houses	0,24	0,240	0 %
New apartment buildings		0,240	0 %
New offices		0,240	0 %
New school establishments		0,240	0 %

Table 13: Cost optimal sols- New building

The weighted average U is equal to the current UMAX requirement (0,24 W/m²K). This requirement is aligned with the optimal level of improvement and should not be strengthened.

Overall performance indicators

K			
Category of reference buildings	Requirements 2021	Cost optimal	Weighted average deviation
New single-family houses	35	27	— 31 %
New apartment buildings		31	— 13 %
New offices		41	15 %
New school establishments		32	— 13 %

Table 14: Level K

ESPEC (kWh/m ² an)			
Category of reference buildings	Requirements 2021	Cost optimal	Weighted average deviation
New single-family houses	85	82	— 11 %
New apartment buildings		63	— 35 %

Table 15 ESPEC

EW			
Category of reference buildings	Requirements 2021	Cost optimal	Weighted average deviation
New single-family houses	45	46	— 6 %
New apartment buildings		39	— 15 %
New offices		64	30 %
New school establishments		48	5 %

Table 16 Level Ew

At the level of the overall performance indicators (E_{spec} , K and E_w) for **new residential buildings**, weighted average optimal levels are relatively different between single-family and apartment buildings, but still below the requirements levels corresponding to the NZEB requirements.

Indicates that, with the construction techniques and heat production systems currently available on the market, residential housing can be built that is generally more efficient and cheaper (over 30 years) than those that strictly meet the overall performance requirements of the EPB regulation.

The average optimal E_w 46 and E_{spec} 82 kWh/m²a of new single dwellings are remarkably close to the NZEB requirements levels (E_w 45 and E_{spec} 85 kWh/m²a).

At the level of the overall performance indicators (K and E_w) in force for new non-residential buildings, the current requirements for offices are more ambitious than cost-optimal. It is therefore not necessary to strengthen these requirements.

On the other hand, for new schools, the average E_w 48 is very close to the requirement 2021 (E_w 45) defined for this functional part. Indicates that, in this segment, a construction that is in line with the current rules is optimal. The recent increase in schools built according to the passive or very low-energy standard confirms this trend.

Compared to the 2017 requirements, the NZEB requirements applicable since 2021 are very close to cost-optimal levels, although for some categories even more ambitious performance can be achieved at an optimal cost.

However, these results will be updated in 2023 by updating the cost-optimal study provided for in the Directive every 5 years. This will make it possible to take account of changes in construction costs in the light of technological developments.

4.4. Energy security dimension

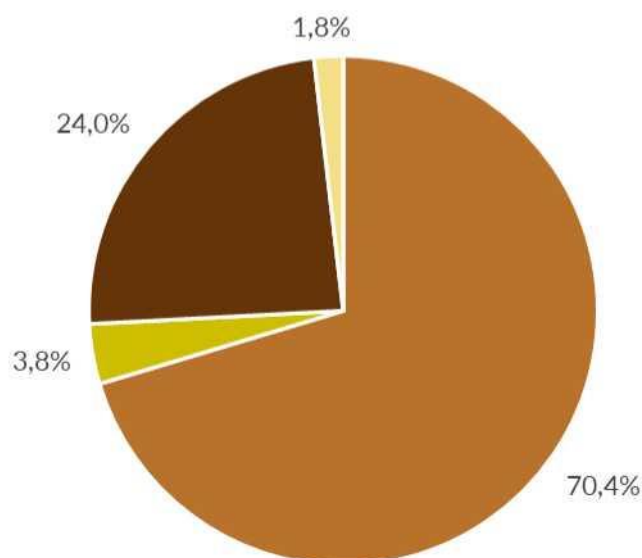
- i. *Current energy mix, national energy sources, import dependency, including relevant risks*

Table 4: Primary energy production in 2021

Energy source		Mtoe	TJ
Nuclear energy		12,2	511.753
Non-renewable waste		0,7	27.654
Renewable energy and biofuels *		4,2	174.396
Other * *		0,3	13.430
Total		17,4	727.232

* Renewable energy and biofuels include unpumped hydropower, wind, solar, geothermal, solid and liquid biomass, biogas, renewable waste and ambient heat used by heat pumps.

* * other includes heat recovery from chemical processes and grill (coal mine gas).



Source: FPS Economy, Key Energy Figures, February 2023

Primary energy production from renewable energy and biofuels increased from 2,8 Mtoe in 2012 (20.8 % share) to 4,2 Mtoe in 2021 (24.0 % share). This increase is mainly due to new wind farms and solar panels. Between 2020 and 2021 wind production slightly decreased by 6.4 % due to particularly

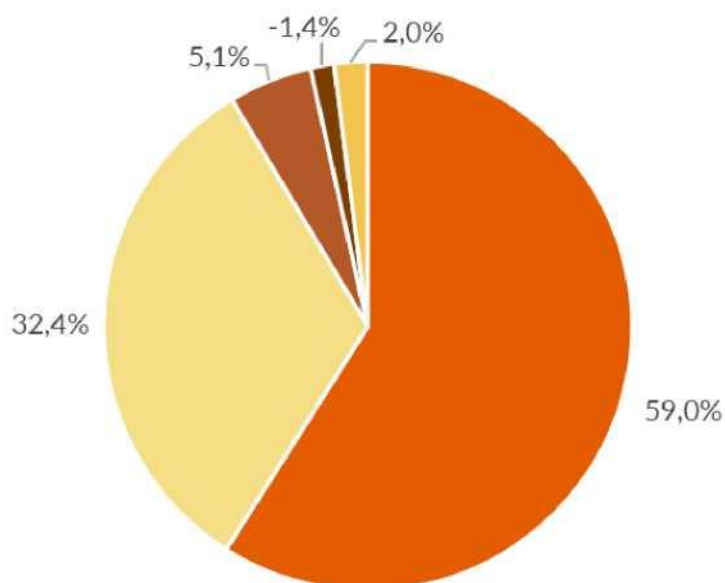
low wind speeds. Solar based production increased by 9.9 %. Nuclear energy production increased sharply by 46.0 % compared to 2020 due to an exceptionally high availability of nuclear installations.

Table 5: Net energy imports in 2021, Mtoe

Net Imports		Mtoe	TJ
Oil and petroleum products		27,7	1.158.950
Natural gas		15,2	635.815
Solid fossil fuels		2,4	100.509
Electricity		— 0,7	— 28.355
Renewable fuels and waste		1,0	40.130
Total		45,5	1.907.050

Source: FPS Economy, Key Energy Data, February 2023

Figure 10: Share of net energy imports in 2021, %.



Source: FPS Economy, Key Energy Data, February 2023 edition

The exploitation of Belgium's fossil energy natural resources is not sufficiently profitable. The last coal mine closed in 1992. There is now only a small recovery of coal from waste heaps and extraction of mine gas for electricity and heat production. As a result, the dependence on imported fossil fuels to meet domestic energy needs is very high.

In 2021, energy dependency, which corresponds to the ratio between net imports and the sum of gross inland consumption and energy supplied for international maritime transport, stood at 70.8 %. Diversification of importing countries and strategic stocks are the main means of ensuring security of

supply.

ii. *Projections of developments with existing policies and measures up to at least 2040 (including 2030)*

Table 4 Mix energy of gross inland consumption (WEM scenario)

%	2005	2010	2015	2020	2021	2025	2030
Solid fuels	8,7	6,2	6,4	5,4	4,6	5,5	5,5
Oil	41,6	40,4	43,7	38,2	37,5	42,4	41,4
Natural gas	24,9	27,7	26,1	29,5	26,8	31,8	33,3
Nuclear heat	20,7	19,1	11,7	16,3	21,5	7,7	6,9
Electricity	0,9	0,1	3,4	– 0,1	– 1,2	2,7	3,0
Renewables							
	1,7	4,4	6,3	8,9	8,3	8,0	8,4
Other	1,5	2,1	2,5	2,6	2,4	1,8	1,7

Source: Eurostat (June 2023) for 2005-2021; compilation of regional projections for 2025-2030.

Around three quarters of Belgium's gross inland consumption comes from fossil fuels (solid fuels, oil and natural gas) in 2005, 2010 and 2015. 20 % came from nuclear power, except in 2015 when the share fell to 12 % due to the shutdown of several nuclear reactors. Part of the decrease in nuclear energy production in 2015 was offset by electricity imports, the share of which increased to 3.4 % (compared to less than 1 % in 2005 and 2010). In 2020, electricity imports fell again while nuclear production is increased to 16 % of gross inland consumption. The share of renewable energy sources is steadily increasing from 2 % in 2005 to almost 9 % in 2020.

Projections with existing measures are characterised by a moderately increasing trend in the share of fossil fuels (almost 80 % in 2030). The increase is particularly marked for natural gas, due to its more intensive use in electricity production, while the share of nuclear in gross inland consumption fell below 7 % in 2030. Moreover, the share of renewable energy sources stabilises at around 8 %. It should be noted that a growing (or decreasing) share is not necessarily synonymous with increasing (or decreasing) consumption. For example, inland oil consumption was lower in 2020-2030 than in 2005. By contrast, gross inland consumption of natural gas and renewable energy is almost constantly increasing over the projection period.

Table 5 Import dependency (WEM scenario)

%	2005	2010	2015	2020	2025	2030

Import dependence	76	74	80	74	82	83

Source: Eurostat (June 2023) for 2005-2020; compilation of regional projections for 2025-2030

Note 1: Projections of net electricity imports have been quantified by the Federal Planning Bureau on the basis of the TYNDP 2020 National Trends study³⁷⁷, prepared by ENTSOE and modelled in Artelys Crystal Supergrid. Capacity, final energy consumption and fuel prices have been adjusted in the model according to Belgium's WEM scenario.

Note: For the period 2020-2030, the split between domestic renewable energy production and net imports is not available. For the calculation of import dependency, it is assumed that renewable energy is entirely produced on Belgian territory.

Belgium imports almost all of its energy needs as the country has very limited domestic energy sources. These include renewable energy sources (wind, solar and biomass), but also nuclear heat even if uranium is imported. Domestic renewable energy production increases by a factor of 3,4 between 2005 and 2020. All fossil fuels are imported. However, fossil fuel imports decreased by 10 % between 2005 and 2015, 17 % between 2005 and 2020 and 12 % between 2005 and 2021. Since 2005, Belgium's import dependency has ranged between 74 and 80 %.

Projections with existing measures translate into increasing import dependency (83 % in 2030). This is mainly due to the phasing-out of nuclear power (nuclear heat is a domestic production according to the Eurostat statistical convention) and the increase in natural gas imports while renewable energy sources are only moderately increasing.

4.5. Dimension of the internal energy market

4.5.1. Electricity Interconnectivity

i. Current level of interconnection and key interconnections

See 2.4.1.

ii. Projections of the necessary reinforcement of interconnections (from 2030 onwards)

4.5.2. Energy transmission infrastructure

i. Main features of existing electricity and gas transmission infrastructure

ii. Projected network expansion needs up to at least 2040 (including for the year 2030)

See 2.4.2.

³⁷⁷<https://2020.entsos-tyndp-scenarios.eu/#download>

4.5.3. Electricity and gas markets, energy prices

i. Current situation of electricity and gas markets, including energy prices

After the unprecedented surge in prices in the third quarter of 2022, electricity and gas prices fell significantly. However, compared to the years before 2020 (before the coronavirus), current price levels are still abnormally high.

On gas exchanges, the average 'day ahead' price fell from $\pm$ EUR 200/MWh in Q3 2022 to $\pm$ EUR 50/MWh in Q1 2023, to $\pm$ EUR 100/MWh in Q4 2022. At the end of March 2023, the price of 'day ahead' gas sometimes fell below EUR 40/MWh.

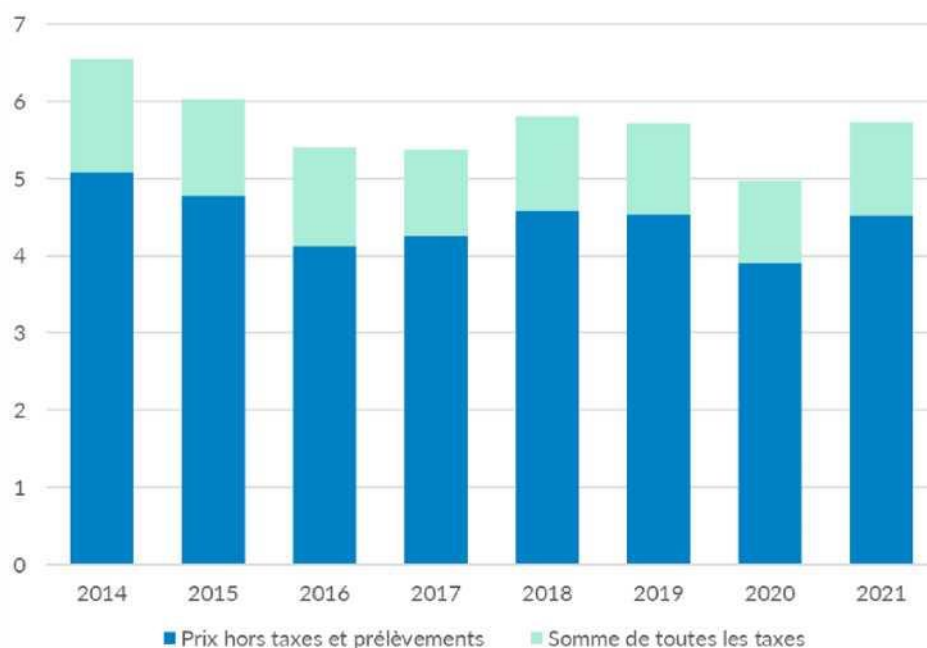
These favourable price developments occur not only in day ahead markets, but also in futures markets, indicating that confidence in security of supply is slowly recovering.

The positive factors contributing to the restoration of confidence were the structural decline in consumption (partly due to the relatively mild winter), the increase in LNG imports (facilitated by the temporary collapse of Chinese demand), the accelerated expansion of LNG import capacity (Germany) and the favourable stock level, which reduces concerns about the challenge of restoring stocks to maximum levels by next winter. This relatively favourable outlook should of course not overlook the fact that risks remain: sharp price declines could revive gas demand, there are still Russian gas imports via LNG (unreliable source) and on the international LNG market, competition with other countries (mainly China) will intensify.

The price of electricity is very much linked to the price of gas, as gas-fired power plants tend to be price drivers under current conditions. On electricity exchanges, the average 'day ahead' price increased from EUR 400/MWh in the third quarter of 2022 to $>$ EUR 200/MWh in the fourth quarter of 2022 and to $>$ EUR 100/MWh in the first quarter of 2023.

However, electricity prices also depend on other factors: the increasing availability of renewable energies, uncertainties regarding the French nuclear production fleet, the local impact of the gradual shutdown of Belgian nuclear production capacity, etc.

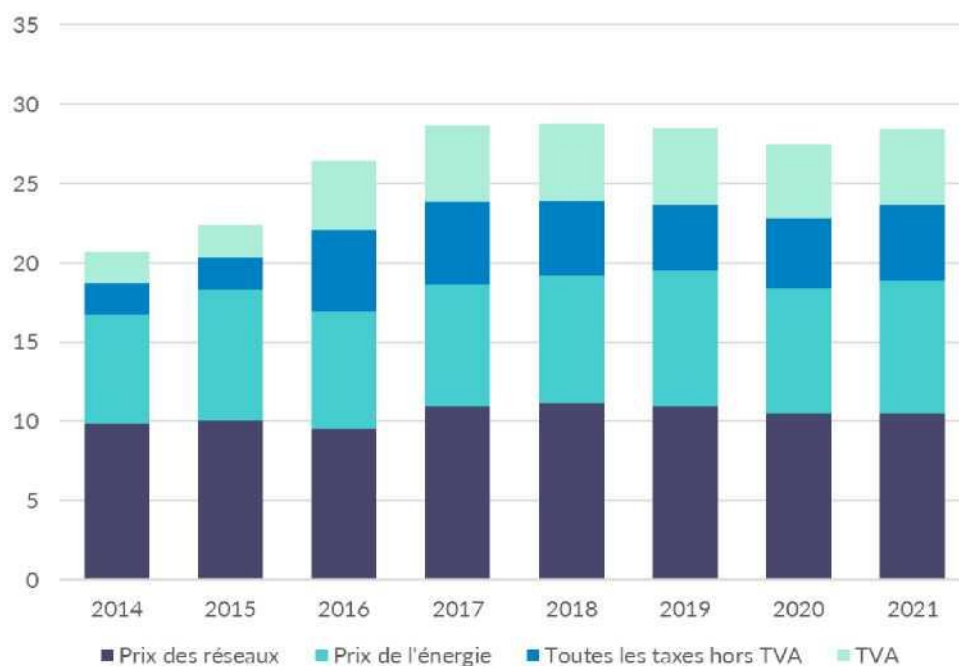
Figure 11: Change in eurocents/kWh – consumption slip D2 (20 to 200 GJ/year)



Source: FPS Economy, Key Energy Data, February 2023 edition

An average Belgian household paid 5,7 cents/kWh for its natural gas in 2021, 15 % more than in 2020. The price excluding taxes and levies, which includes energy, supply and network costs, represents 78.9 % of the total price. The share of VAT and other taxes is 21.1 %. Since the second half of 2021, wholesale prices have increased. This is gradually affecting the price that households pay.

Figure 12: Evolution in eurocents/kWh – Consumption tranche DC (2.500-5.000 kWh/year)



Source: FPS Economy, Key Energy Data, February 2023 edition

An average Belgian household paid 28,5 cents/kWh for its electricity in 2021, 3.7 % more than in 2020. The energy price accounted for 29.6 % of the total electricity bill in 2021. Network tariffs remained stable at 36.7 %. The share of taxes reached 33.6 % of the total invoice.

As a result of an increase in the wholesale price for natural gas, the wholesale electricity price has also increased. From the second half of 2021, this resulted in an increase in the price paid by households.

ii. Projections of developments with existing policies and measures up to at least 2040 (including 2030)

4.6. Research, innovation and competitiveness dimension

I. Current situation of the low carbon technology sector and, where possible, its position on the global market (this analysis should be carried out at EU or global level).

Federal State

As part of the IEA SLT/CERT questionnaire, Belgium provides annual data on public expenditure on R & D and demonstration projects. Questionnaire 2017/2018 in annex contains the most recent data (2016 data for federal and regional levels, nuclear data include estimates for 2017 and budget for 2018). More information on R & D and demonstration statistics can be found in the In-depth Review of the Belgian Energy Policy 2015 of the IEA (published in 2016) 90,91. Collecting data on private R & D expenditure and demonstration projects in low-carbon technologies is not a common practice. Moreover, it is a time-consuming and complex task. In general, the collection of data on private expenditure on R & D and demonstration projects is based on the NACE classification, which does not fully reflect the low-carbon technology sector. Therefore, assumptions need to be made on the basis of different NACE codes (to some extent). The collection of data on the current number of patents and the current number of researchers in the field of low carbon technologies is also not a common practice, for the same reasons as those mentioned above.

Specific federal initiatives:

- Energy Transition Fund: see 2.5 and 3.5.
- Research and development in the field of nuclear energy: see 2.5 and 3.5.

Region Walloon

Research actions in Wallonia are supported by the Decree of 3 July 2008 on support for research, development and innovation in Wallonia and its implementing decrees. These provisions lay down the general framework for support for research and set out the valuation patterns in Wallonia, which is essential for obtaining research funding. All support for research is provided by means of the mechanisms provided for in the decree.

Funding is given for thematic calls for projects or 'one-stop-shop' or 'bottom up' funding for research submitted by companies.

To this end, an overall annual budget of ± EUR 320 million (average 2012-2020) is set aside for the Region's budget for the various types of support (grant, co-financing or repayable advances), of which approximately EUR 44 million is for energy.

In addition, specific calls for research and energy have been launched:

- Erable (2011) on energy production techniques and energy efficiency.

- Reliable (2012) on smart grids.
- ENERGINISERE (2013) which concerned energy storage.
- Requests for projects in 2015 and 2016 to finance research projects within the framework of the International Energy Agency (IEA) or to support projects of regional interest in the field of energy.
- Living Labs (2020)³⁷⁸ aimed at funding experimental research and development to develop living labs or demonstration labs in the following areas: the objective was to fund experimental research and development to develop living labs or demonstration labs in the following areas:
 - Electric energy communities and/or heat/cooling.
 - Collective renovation process.
 - Management of shared electric mobility.

These calls for projects were allocated a cumulative budget of EUR 28,5 million. These calls were largely based on European dynamics in the technological direction of research.

The link with European research programmes takes place, on the one hand, in the Department for Research and Technological Development of the SPW Economy, Employment and Research, whose Directorate for Research Programmes manages programmes co-financed by Europe (ERA-NET, ERA-NET +, etc.). On the other hand, the National Contact Point (NCP-Wallonie) (NCP) for Wallonia is promoted by the European R & I Framework Programme (currently Horizon Europe), hosted in UWE following an agreement between the Walloon Region and the latter.

The annual budget for EU co-financing programmes is ± EUR 7 million across all research areas. Concerning energy, the ERA-NET “Smart Grids”, “Solar”, “Smart Cities”, “NEWA”, the ERA-NET COFUND “SOLAR 2” and “RegSYS” were supported by the Walloon Region.

Similarly, it participated in the Urban Europe Call and the Hydrogen-Fuel Cell JTI.

At the same time, under the leadership of the Marshall Plan, the Mecatech Plates (in 2006) and GreenWin (in 2010) were set up with the objectives of mentoring technological development actors and supporting research and innovation projects in the field of mechanical engineering and in the field of green chemistry.

The TWEED (Technology Wallonne Energie – Environment and Sustainable Development), Cap Construction and Eco-construction clusters bring together stakeholders to promote innovation and economic development in the sector.

³⁷⁸ <https://energie.wallonie.be/fr/19-08-2020-appel-a-projets-de-recherche-2020-living-labs-ou-laboratoires-living-s.html? IDC = 9795 & IDD = 143115>

II. Current level of public and, where appropriate, private spending on research and innovation in low-carbon technologies, current number of patents and current number of researchers.

Federal State

In 2021, the federal budget for R &D on low carbon technologies amounted to EUR 252 million.

Region Walloon

An annual survey of research projects (data available until 2020) is carried out as part of Belgium's participation in the International Energy Agency.

Between 2005 and 2020, public expenditure on research and development varied between 10 and 60 million annually (see figures below). The priority axes of Walloon energy research in descending order of public expenditure are as follows: energy efficiency in transport, other, industry and buildings; electricity/smart grids and storage technologies, renewable energy, mainly bioenergy and solar, but also wind and geothermal energy; and other cross-cutting areas, including hydrogen and fuel cells.

The largest share is spent on energy efficiency, which represents around 2/3 of the total since 2012. 2019 was the lowest funding year in 10 years, unlike 2020, which is an out-of-standard value. 2020 is the year with the highest funding since the compilation of statistics. This is linked to the Covid period, with funding of EUR 30 million for 'clean' aviation research³⁷⁹ (see Figure 22.). The categories Transmission Developing Electricity Distribution (with an exceptional year 2020, see Figure 23) and Energy Storage, exceed the financing of renewable energy topics in 2012, 2014, 2016, 2017, 2019 and 2020. There was stagnation (2018) and then erosion (2019-2020) of funding for research on renewable energy. Public financing of fossil fuels had stopped, but in the period 2018-2019-2020 it slightly resumed and fluctuated between EUR 0,1 million and EUR 0,4 million.

³⁷⁹<https://www.skywin.be/fr/news/wings-le-partenariat-dinnovation-du-secteur-aeronautique-face-la-crise-rassemble-dix-neuf>

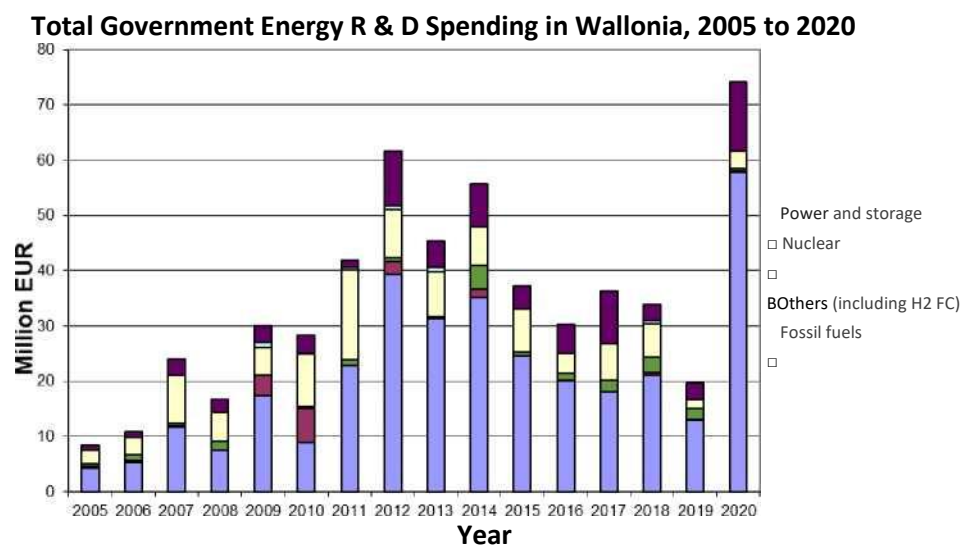


Figure 18: Public expenditure on energy research and development by thematic (2005-2020). Sources: SPW — TLPE (2021)

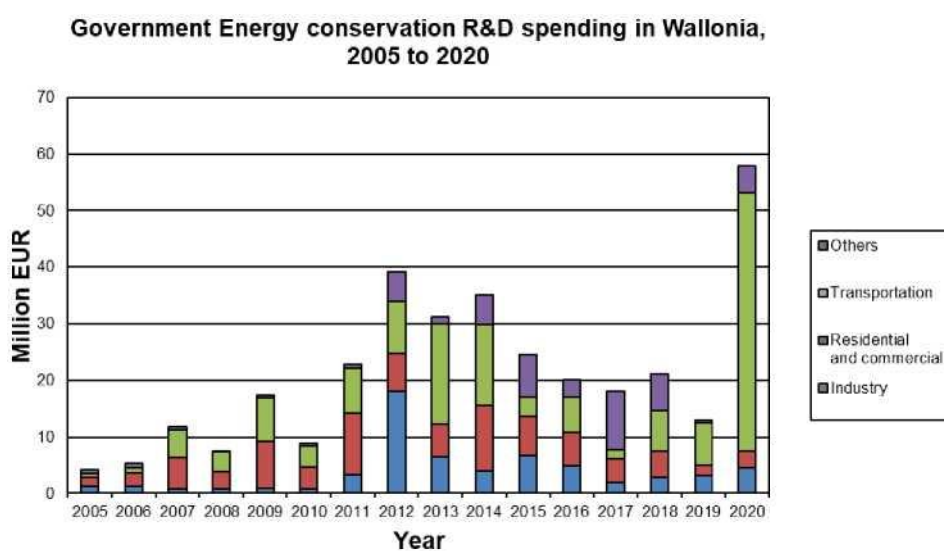


Figure 19: Public expenditure on energy efficiency research and development (2005-2020). Source: SPW-TLPE (2021)

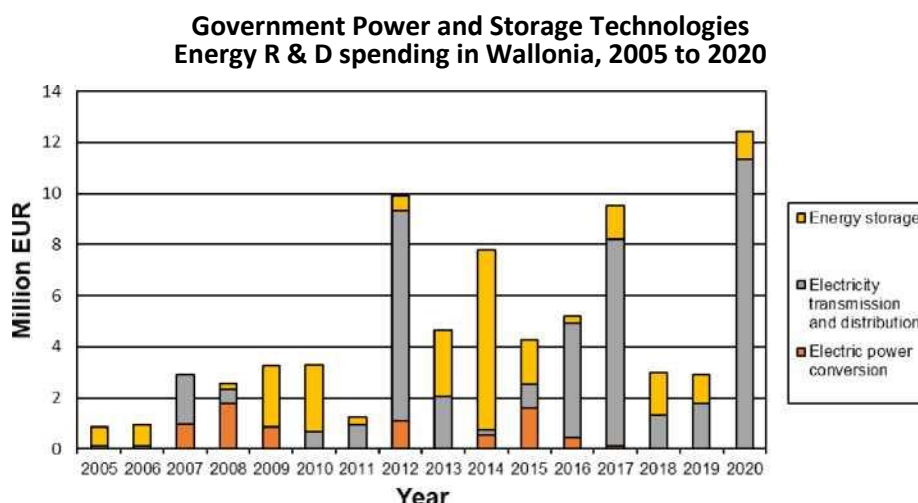


Figure 20: Walloon public expenditure on research and development on electricity/smart grids and storage technologies (2005-2020).
Source: SPW-TLPE (2021)

iii. *Breakdown of current price elements constituting the three main price components (energy, network, taxes/charges)*

Federal State

With its publication Key Energy Figures, published in February 2023³⁸⁰, the FPS Economy, SMEs, Middle Classes and Energy aims to provide information on prices, energy, innovation and new technologies. To do so, it makes efficient and targeted use of statistical data, market data, database and analysis and planning tools. In doing so, it communicates in a modern and proactive manner.

Prices and tax data for petroleum products, natural gas and electricity, as well as all energy price indices, are communicated to the IEA on a quarterly basis by the FPS Economy, SMEs, Self-Employed and Energy³⁸¹. Natural gas and electricity prices can also be consulted in the Eurostat³⁸² database, which contains all data available from Eurostat (database by topic/environment and energy/energy).

A recent study commissioned by the Belgian Federal Commission for Electricity and Gas Regulation (CREG) “A European comparison of electricity and natural gas prices for residential, small professional and wide industrial consumers” by Forbeg³⁸³ compares energy prices for two household consumers and two small business consumers between the three Belgian regions and four other countries (Germany, France, the Netherlands and the United Kingdom) in May 2022. The comparison covers four components for household consumers and three components for small business consumers (pure energy component, network costs, levies and taxes, VAT). The description of the structure of the components of current electricity and natural gas prices (May 2022) can be found in Chapter 6 of this

³⁸⁰<https://economie.fgov.be/fr/publications/energy-key-data-fevrier-2023>

³⁸¹<https://www.iea.org/statistics/topics/pricesandtaxes/>

³⁸²<http://ec.europa.eu/eurostat/data/database>

³⁸³<https://www.creg.be/sites/default/files/assets/Publications/Studies/F20220513EN.pdf>

study.

iv. Description of energy subsidies, including fossil fuels

See section 3.1.3 (iv).

Federal State

In May 2021, a first inventory of the identification of federal support measures for fossil fuels was carried out as part of the commitment made in the NECP, to draw up such an inventory and to propose a plan for phasing out these subsidies for fossil fuels (preferably in the European context). This first edition was updated in April 2023 on the basis of information available on 1 January 2023⁹⁶.

For the identification of subsidies in this report, the identification criterion is to subsidise, directly or indirectly, the use of fossil fuels.

While they have generally been set up to meet social or competitiveness objectives, these subsidies, in their current form, run counter to efforts to decarbonise society and improve air quality.

In the discussions on phasing out these subsidies, account should be taken of the specific objectives of certain subsidies, in particular social objectives. Their reform must reconcile the elimination of adverse effects on the environment with the adverse effects on the environment by other means, which are not harmful to the environment, of the particular objectives identified.

Table xx. Details of the main subsidy items – by sector – 2020:

	Million EUR	
Transport		
Fuel cards	492,0	22.7 %
Difference in basic rate between products	165,4	7.6 %
Reimbursement of professional diesel	1.230,5	56.7 %
Exemption from inland navigation	10,3	0.5 %
Exemption from dredging	59,7	2.8 %
Excise duty exemption from aviation kerosene	208,9	9.6 %

Other	3,9	0.2 %
<i>Subtotal direct grants</i>	<i>2.170,7</i>	<i>100 %</i>
Company cars	1.947,2	96.9 %
VAT – Exemption for airline tickets	61,9	3.1 %
<i>Sub-total indirect grants</i>	<i>2.009,0</i>	<i>100 %</i>
Total transport	4.179,7	
Industry		
Difference in basic rate between products	1.888,6	57.6 %
Reduced rate of gas oil	383,2	11.7 %
Reduced rate of natural gas	911,2	27.8 %
Other	98,5	3.0 %
Total industry	3.281,5	100 %
Buildings		
Transfers to individuals (social tariffs, etc.)	165,6	3.5 %
Difference in basic rate between products	2.261,4	47.6 %
Exemption for heating oil	2.260,0	47.5 %
Other	65,8	1.4 %
Total Buildings	4.752,8	100 %
Agriculture and other activities		
Difference in basic rate between products	251,5	38.1 %
Exemptions on intermediate consumption	407,9	61.9 %
Total agriculture and other activities	659,3	100 %

In the transport sector, the most important item of direct subsidies is the reimbursement of professional diesel, which alone accounts for 57 % of the total direct subsidies received by this sector. This is followed by the fuel cards and the tax exemption on kerosene enjoyed by aviation. Sectoral exemptions form only a small part of total subsidies but may be relatively large in relation to the activity of these sectors. The impact of product rate differentials is here relatively limited given the small tax gap between petrol and diesel, which are the two main fuels concerned.

In industry, more than half (57 %) of direct subsidies stem from product rate differentials and in particular from low taxation of natural gas. The reduced rate applied to it for certain undertakings forms the second important item.

In the buildings sector, the two main items are subsidies from differences in rates between products and the exemption of heating oil. The first relates mainly to natural gas.

Finally, two items are to be mentioned for agricultural and similar activities. The sub-taxation of natural gas (differences in rates between products) represents 40 % of the total and sectoral schemes 60 %.

The figures given above relate to 2020. In the meantime, several measures have already been taken to phase out certain subsidies, such as the reduction of the advantage for professional diesel and the greening of mobility for company cars.

5. IMPACT ASSESSMENT OF PLANNED POLICY MEASURES

For the final version of the Plan, it should be noted that Belgium has used the technical assistance (TSI) offered by the European Commission through a consultant (ICF) for the implementation of the Governance Regulation. The practical arrangements for this assistance are being defined in cooperation with the Federal Plan Office. The work will help to improve the assessment of the impact of the draft plan.

5.1. Effects of planned policies and measures described in Section 3 on the energy system and greenhouse gas emissions and removals, including comparison with projections with existing policies and measures (as described in Section 4).

1. Projections of the evolution of the energy system and of greenhouse gas emissions and removals and, where applicable, of air pollutant emissions in accordance with Directive (EU) 2016/2284 as part of planned policies and measures up to at least 10 years after the duration of the plan (including the last year of the duration of the plan), including relevant Union policies and measures.

This chapter presents the impact of the policies and measures described in Chapter 3 on the energy system and greenhouse gas emissions and removals. The projections with the policies and measures envisaged are referred to later in the text as ‘WAM scenario (= with additional measures)’.

1. Greenhouse gas emissions

TABEL 4 evolutie van broeikasgasemissies per beleidssector (WAM scenario)

<i>MtCO₂-eq.</i>	2005	2010	2015	2019	2020	2021	2025	2030
Total excl. LULUCF	145,4	133,6	119,0	116,5	107,3	111,0	105,9	83,3
Total incl. LULUCF	143,7	133,3	118,1	116,0	106,9	110,6	105,0	82,0
ETS (ETS scope 2013-2020)	66,5	54,8	44,7	44,6	41,5	41,4	43,1	36,5
ESR (ETS scope 2013-2020)	78,9	78,8	74,3	71,9	65,8	69,5	62,7	46,8
LULUCF	– 1,8	– 0,4	– 0,9	– 0,5	– 0,3	– 0,3	– 0,9	– 1,3

Source: Belgian FIU report (15/03/2023) for 2005-2021; compilation of regional and federal projections for 2025-2030.

Under the WAM scenario, total greenhouse gas emissions (excluding LULUCF) are projected to decrease between 2021 and 2030 to 83 million tonnes of CO₂ equivalent (-43 % compared to 2005). The WAM scenario identifies a reduction in ESR C emissions between 2021 and 2030 of Mt CO₂-eq to 47 Mt CO₂-eq. ETS emissions are also decreasing to 36,5 million tonnes of CO₂ equivalent. For LULUCF, the WAM scenario results in emission reductions of 1,3 million tonnes of CO₂ equivalent in 2030.

Go out! Verwijzingsbron niet gevonden., the evolution of ESR emissions in the WAM scenario is shown compared to 2005.

Table 5 Evolution of ESR greenhouse gas emissions compared to 2005 (WAM scenario)

Development in 2021	comparison with 2005 (%)		2005	2010	2015	2019	2020
	2025	2030					
Belgium	—	— 3.4 %	— 9.0 %	— 12.0 %	— 19.4 %	— 14.8 %	— 23.1 % — 42.6 %

Source: issuance ESR 2005 Executive Decision (EU) 2020/2126384; Source: Belgian FIU report (15/03/2023) for 2010-2021; compilation of regional and federal projections for 2025-2030.

Table 6 Total greenhouse gas emission trends by IPCC sector (WAM scenario)

<i>MtCO₂-eq.</i>								
	2005	2010	2015	2019	2020	2021	2025	2030
1 energy	105,8	99,6	87,1	85,5	78,1	82,1	79,0	63,9
1a fuel consumption	105,0	98,8	86,4	84,8	77,4	81,4	78,3	63,2
1A1 energy industries	29,0	26,1	20,8	21,0	19,0	18,2	19,1	17,3
1A2 manufacturing and construction industries	18,9	16,0	13,8	13,9	13,3	14,0	13,8	13,0
1A3 transport	26,7	26,7	26,9	26,0	21,7	23,9	23,5	16,6
1A4 other sectors	30,1	29,9	24,7	23,9	23,3	25,3	21,8	16,3
1A5 other	0,2	0,1	0,1	0,1	0,1	0,1	0,1	0,1
1b fugitive emissions from fuels	0,8	0,8	0,7	0,7	0,7	0,7	0,7	0,7
2 industrial processes and product use	26,5	21,7	20,5	19,9	18,4	18,2	17,2	11,1
3 agriculture	9,9	9,7	9,7	9,6	9,5	9,4	8,7	7,5
4 LULUCF	— 1,8	— 0,4	— 0,9	— 0,5	— 0,3	— 0,3	— 0,9	— 1,3
5 pieces of waste	3,2	2,6	1,7	1,4	1,3	1,3	1,1	0,9

Source: Belgian FIU report (15/03/2023) for 2005-2021; compilation of regional and federal projections for 2025-2030.

In the WAM scenario, energy-related emissions are expected to decrease by 40 % in 2030 compared to 2005. Relatively large reductions are expected in the transport and buildings sectors ('other sectors'), with 38 % and 46 % respectively in 2030 compared to 2005. In the energy sector, reductions are expected to be rather limited in the coming years due to the phasing out of nuclear capacity, partly compensated by gas-fired power plants.

The most pronounced reductions concern emissions from industrial processes, which are down by 58 % compared to 2005. This is largely due to the planned CCS projects in the Flemish region by 2030.

In the agricultural sector, the planned additional policies lead to a reduction of 24 % in 2030 compared to 2005. Waste emissions continue to be on a downward trend by 2030.

Table 7 Evolution of greenhouse gas emissions by greenhouse gases, excluding LULUCF (WAM scenario)
MtCO₂-eq.

	2005	2010	2015	2019	2020	2021	2025	2030
CO ₂	125,6	114,6	101,1	99,5	91,1	95,7	92,8	72,7
CH ₄	9,6	9,1	8,5	8,1	8,0	7,9	7,0	5,7
NO ₂ O	7,5	6,7	5,3	4,9	4,8	4,7	4,4	4,0
F-gassen	2,6	3,2	4,0	4,0	3,4	2,7	1,8	0,9

Source: Belgian FIU report (15/03/2023) for 2005-2021; compilation of regional and federal projections for 2025-2030.

Between 2021 and 2030, the WAM scenario reduces CO₂ emissions to 73 Mt CO₂-eq. The continued reduction of methane emissions is largely due to changes in landfill emissions (see also the **outage! Verwijzingsbron niet gevonden.**), but also through the additional reductions under the WAM scenario in the agricultural sector. Nitrous oxide emissions also show a further reduction in the period 2021-2030, partly thanks to additional reductions in the agricultural sector and emissions from industrial processes. Emission reductions are also expected for F-gas emissions in the period 2021-2030.

Table 8 Evolution of greenhouse gas emissions by IPCC sector (WAM scenario)
MtCO₂-eq.

Mton CO ₂ -eq	2005	2010	2015	2019	2020	2021	2025	2030
1 energy	63,4	63,2	58,3	56,5	51,6	56,0	51,2	37,6
1a fuel consumption	62,7	62,5	57,6	55,9	51,0	55,4	50,6	37,0
1A1 energy industries	1,5	1,6	1,9	2,1	2,3	2,3	2,0	1,5
1A2 manufacturing and construction industries	4,5	4,4	4,2	4,1	3,8	4,0	3,4	2,8
1A3 transport	26,6	26,5	26,8	25,8	21,6	23,8	23,3	16,4
1A4 other sectors	30,0	29,8	24,6	23,8	23,3	25,2	21,7	16,2
1A5 other	0,2	0,1	0,1	0,1	0,1	0,1	0,1	0,1
1b fugitive emissions from fuels	0,7	0,7	0,6	0,6	0,6	0,6	0,6	0,6
2 industrial processes and product use	2,8	3,9	4,8	4,6	3,6	3,1	2,1	1,2
3 agriculture	9,9	9,7	9,7	9,6	9,5	9,4	8,7	7,5
4 LULUCF	—	—	—	—	—	—	—	—
5 pieces of waste	2,7	2,0	1,4	1,2	1,1	1,0	0,8	0,6

Source: Belgian FIU report (15/03/2023) for 2005-2021; compilation of regional and federal projections for 2025-2030.

The reduction of ESR emissions to 47 million tonnes of CO₂ equivalent in 2030 can largely be attributed to energy-related emission reductions from 56 to 38 million tonnes of CO₂ equivalent between 2021 and 2030. In absolute terms, in the WAM scenario, the largest reductions over the period 2021-2030 concern the buildings and transport sub-sectors. Emissions from industrial processes are decreasing from 3,1 million tonnes of CO₂ equivalent in 2021 to 1,2 million tonnes of CO₂ equivalent in the WAM scenario. This decrease is mainly due to the decrease in F-gas emissions (see also the **cost! Verwijzingsbron niet gevonden.**) and the additional policy efforts in the WAM scenario to address nitrous oxide emissions from caprolactam production. Waste emissions also continue to decline by 2030.

Go **out! Verwijzingsbron niet gevonden.**, the ESR emissions of the WEM and WAM scenarios are

compared to the previous ESR emission allowances. In the WEM scenario, the ESR emission targets are not met from 2023 onwards. On an annual basis, the deficit increases to 21 million tonnes of CO₂ equivalent in 2030. Cumulated over the period 2021-2030, a deficit of 81 million tonnes of CO₂ equivalent is expected. In the WAM scenario, the ESR emission targets are not met from 2024 onwards. On an annual basis, the deficit increased to 4 million tonnes of CO₂ equivalent in 2030. In total, a deficit of 13 million tonnes of CO₂ equivalent is expected over the period 2021-2030.

Figure 27 ESR projections 2021-2030, WEM and WAM scenarios compared to budget
ESR emissions 2021-2030

MtCO₂-eq.

80 70 60 50 40 30 20 10

2021 2022 2023 2024 2025 2026 2027 2028 2029 2030

ESR Emissies WAM ESR Emissies WEM ESR emissieruimte

Source: Compilation of regional and federal projections for 2021-2030 (ESR WAM emissions³⁸⁵); 2021-2022 and 2030 in accordance with Executive Decision (EU) 2020/2126³⁸⁶, 2023-2025 (own calculator) and 2026-2029 (own calculator, preliminary estimate) in accordance with Regulation (EU) 387/2023³⁸⁷ (ESR emission budget).

2. Renewable energy sources

Table 6 Share of renewable energy sources in gross final energy consumption, total and by sector (WAM scenario) %

	2005	2010	2015	2020	2021	2025	2030
RES	2,3	6,0	8,1	13,0	13,0	14,4	21,7
RES-E	2,4	7,3	15,6	25,1	26,0	32,7	48,5
RES-T	0,7	4,8	3,9	11,0	10,3	14,8	28,2
RES-H & c	3,4	6,7	7,9	8,4	9,2	10,2	15,4

Source: Eurostat and SHARES results for 2005-2021; compilation of regional and federal projections for 2025-2030.

³⁸⁵2021 on the basis of the inventory report of 15/03/2023 and 2022 on the basis of the provisional inventory report of 31/07/2023

³⁸⁶<https://eur-lex.europa.eu/legal-content/NL/TXT/PDF/?uri=CELEX:32020D2126>

³⁸⁷<https://eur-lex.europa.eu/legal-content/NL/TXT/PDF/?uri=CELEX:32023R0857>

The envisaged policies and measures result in a **total share of renewable energy sources (RES)** of 21.7 % in 2030, 8,7 percentage points higher than in 2020 and 4,8 percentage points higher than in the WEM scenario.

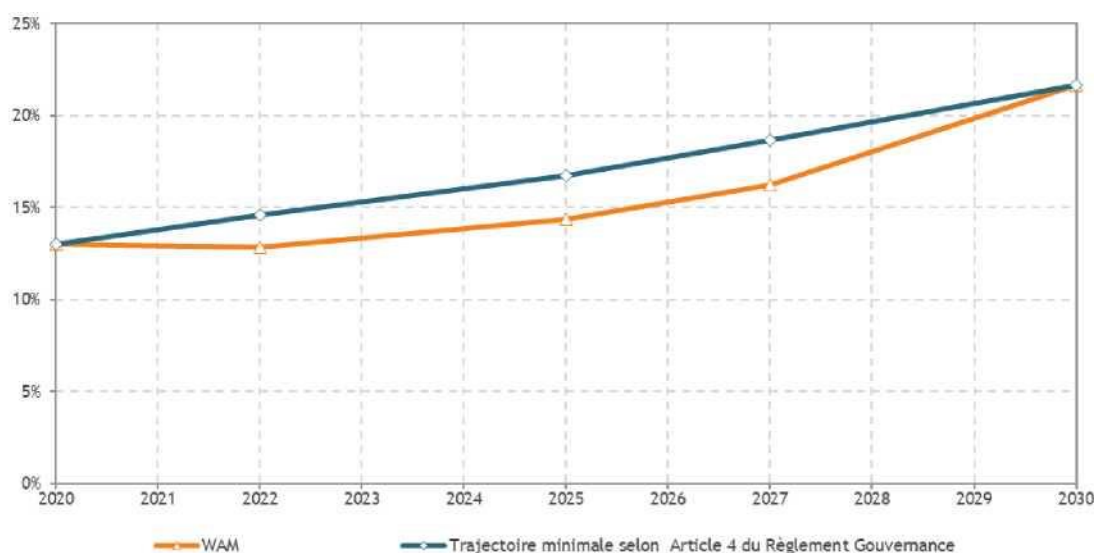
The share of **renewable energy sources in electricity consumption (RES-E)** increases to 48.5 % in 2030 in the WAM scenario compared to 26.0 % in 2021 and 36.5 % in the WEM scenario in 2030. The increase is due to an increase in electricity generation from RES (+ 96 % compared to 2021)³⁸⁸; note that the increase in final electricity consumption (+ 5 % compared to 2021) has an opposite effect on RES-E's share.

The share of **renewable energy sources for transport (RES-T)** increases to 28.2 % in 2030 in the WAM scenario compared to 10.3 % in 2021 and 16.7 % in the WEM scenario in 2030. This growing share in the WAM scenario results mainly from an increase in electricity (RES) (more than 10 times the 2021 level in 2030) following the development of electric vehicles, but also from a decrease in final energy consumption for transport (-24 % in 2030 compared to 2021). The impact of the upward uptake rate of biofuels is mitigated by the decrease in the consumption of fuels in transport.

Finally, the share of renewable energy sources for heating and cooling (RES-H & C) increases to 15.4 % in 2030 in the WAM scenario compared to 9.2 % in 2021 and 9.4 % in the WEM scenario in 2030. The increase is due to increased consumption of RES for heating and cooling (e.g. biomass, heat pumps) and a decrease in total energy consumption for heating and cooling (-14 % in 2030 compared to 2021).

Figure 2 compares the evolution of the share of RES in the WAM scenario over the period 2020-2030 with the indicative trajectory defined in Article 4 (a) (2) of the Governance Regulation.

Chart 2 Evolution of the share of RES in the WAM scenario and indicative trajectory (%)



³⁸⁸ The increase concerns all RES technologies, but is particularly marked for wind (both onshore and offshore) and photovoltaic: + 114 % wind, + 143 % solar photovoltaic

The table below shows the development of RES by technology in the WAM scenario.

	(ktoe)	2015	2020	2025	2030
RES-E					
Hydro		28,4	26,3	38,1	38,6
Wind		434,8	928,1	1429,8	2431,7
Solar PV		262,8	439,0	739,9	1174,7
Biomass		473,9	453,7	333,9	364,4
RES-T					
Res elec road		0,3	3,7	35,9	237,1
Res elec rail		35,9	40,5	55,3	85,0
Biofuels		256,1	666,0	756,0	524,7
RES-H & c					
Biomass & other		1426,2	1360,2	1615,7	1930,0
Heat pumps		49,7	130,4	254,0	590,2

3. *Energy efficiency dimension*

Projections with the envisaged policies and measures show a decrease in both primary and final energy consumption over the period 2020-2030. Primary energy consumption in 2030 was 36.5 Mtoe, 29 % below the 2005 level³⁸⁸ and final energy consumption at 29.9 Mtoe³⁸⁹, 15 % below the 2005 level³⁹⁰.

³⁸⁸ According to Eurostat energy balances. The historical figures up to 2021 are taken from the Eurostat energy balances of the Belgium (EC recommendations/request) while projections are based on regional energy balances. The gap between the two sources is limited. For 2019, it is 1.5 % for primary energy consumption and 0.5 % for final consumption. This gap may vary over time. However, differences in forms of energy and sectors can be much larger.

³⁸⁹ In order to aim for consistency with EU REF 2020, which serves as a benchmark at European level, the consumption of blast furnaces is not included. Cele accounted for a consumption of 2030 ktoe in 1427.

³⁹⁰ According to Eurostat energy balances.

Table 7 Primary and final energy consumption in the economy and by sector (WAM scenario)

ktoe		2005	2010	2015	2020	2021	2025	2030
Primary energy consumption		51801	53622	45952	44206	49073	42930	36522
Final energy consumption		35358	36809	34550	32005	34504	33722	29934
Industry		10571	10954	10572	9995	10579	11259	11179
Residential		9144	9609	8198	7774	8435	7595	6444
Tertiary		5693	5818	5344	5255	5383	4731	4065
Transport		9884	10331	10357	8911	10043	10137	8247

Source: Eurostat (June 2023) for 2005-2021; compilation of regional projections for 2025-2030.

Note 1: Final energy consumption (FEC) includes international aviation and excludes ambient heat. High supply consumption is not included
Primary energy consumption (PEC) is gross inland consumption minus non-energy consumption and ambient heat

Note 2: The projected primary consumption of natural gas by the Belgian power park has been quantified by the Federal Planning Bureau. based on the "National Trends" study of TYNDP 2020, prepared by ENTSOE and modelled in Artelys Crystal Supergrid. Capacity, final energy consumption and fuel prices have been adjusted in the model according to Belgium's WAM scenario.

The sectors that contribute most to the downward trend (both in absolute and relative terms) are residential and tertiary, as well as transport. In 2030, final energy consumption in these sectors decreased by 18 % (transport sector) and 24 % (residential and tertiary sectors) compared to 2021. On the other hand, policies and measures envisaged in industry, coupled with the sector's business prospects, do not reduce the sector's final energy consumption.

Table 8 shows the evolution of primary and final energy consumption by 2030 according to the EU Reference Scenario 2020391 ("EU REF 2020"). Compared to the projected levels in 2030 in this scenario, primary (final) energy consumption in the WAM scenario is reduced by 4.7 % (5.2 % respectively) in 2030.

391 https://energy.ec.europa.eu/data-and-analysis/energy-modelling/eu-reference-scenario-2020_en

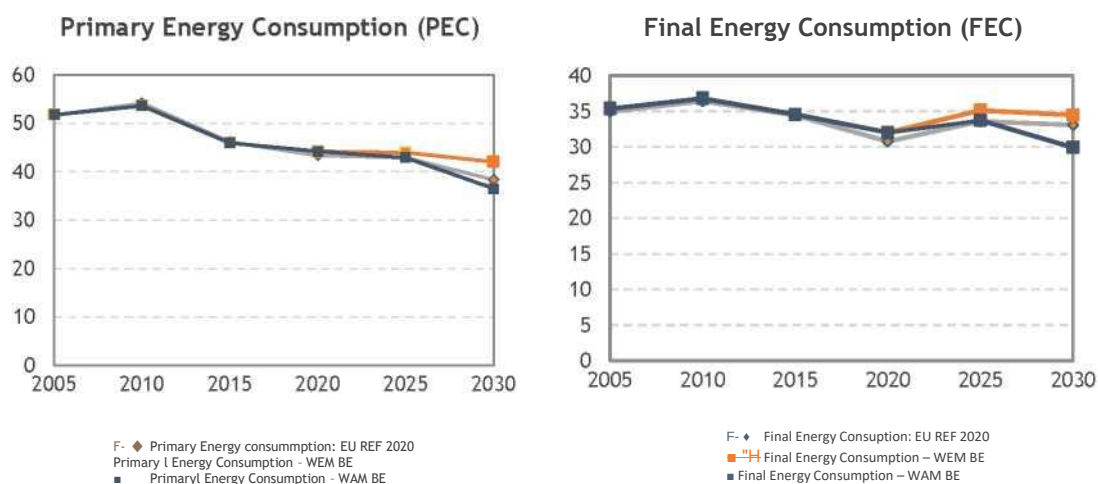
Table 8 Primary and final energy consumption according to EU Reference Scenario 2020

ktoe	2005	2010	2015	2020	2025	2030
Primary energy consumption	51622	54161	46154	43386	42903	38342
Final energy consumption	34951	36403	34414	30754	33582	33066

Source: EU reference scenario 2020 – Energy, transport and GHG emissions: trends to 2050 (2021)

Figure 3 compares the projected 2030 levels of primary and final energy consumption of the WAM scenario with the 'EU REF 2020' scenario and the WEM scenario presented in the previous chapter.

Figure 28 Primary and Final Energy Consumption, WAM-WEM - Reference EU 2020 Mtoe



Source: Eurostat (June 2023) for 2005-2020; compilation of regional projections for 2025-2030.

4. Energy security dimension

Table 9 Mix energy of gross inland consumption (WAM scenario)%

	2005	2010	2015	2020	2021	2025	2030
Solid fuels	8,7	6,2	6,4	4,6	4,6	5,5	5,9
Oil	41,6	40,4	43,7	38,2	37,5	40,7	38,2
Natural gas	24,9	27,7	26,1	29,5	26,8	30,3	31,6
Nuclear heat	20,7	19,1	11,7	16,3	21,5	10,7	7,6
Electricity	0,9	0,1	3,4	– 0,1	– 1,2	1,6	2,6
Renewables							
	1,7	4,4	6,3	8,9	8,3	9,4	12,4
Other	1,5	2,1	2,5	2,6	2,4	1,8	1,7

Source: Eurostat (June 2023) for 2005-2021; compilation of regional projections for 2025-2030.

The envisaged policies and measures lead to an increase in the share of RES to 12.4 % of gross domestic consumption in 2030, an increase of 10,7 percentage points compared to 2005. Despite this development of renewable energy sources, fossil fuels still account for more than 75 % of the primary energy mix in 2030.

Table 10 Import dependency (WAM scenario)

%	2005	2010	2015	2020	2025	2030
Import dependence	76	74	80	74	78	78

Source: Eurostat (June 2023) for 2005-2020; compilation of regional projections for 2025-2030

Note 1: Projections of net electricity imports have been quantified by the Federal Planning Bureau on the basis of the TYNDP 2020³⁹³ National Trends study prepared by ENTSOE and modelled in Artelys Crystal Supergrid. Capacity, final energy consumption and fuel prices have been adjusted in the model according to Belgium's WAM scenario.

Import dependency shows a steady trend towards 2030. Oil and natural gas account for the majority of Belgian energy imports. While the amount of imported oil will decrease by 2030, the amount of natural gas follows a steady trajectory until 2030. The net amount of imported electricity, which depends on the energy mix of Belgium and its neighbours, is increasing by 2030.

Flemish Region

1. Greenhouse gas emissions

Transport and mobility (WAM scenario)

The evolution of greenhouse gas emissions from road traffic is determined, on the one hand, by the impact of measures geared towards the development of mobility and, on the other hand, by the impact of the policy on greening the vehicle fleet.

Figure 2-12 summarises the evolution of road traffic in the WAM scenario compared to the reference year 2015. The evolution of the number of kilometres travelled was determined using the strategic freight model

³⁹³ <https://2020.entsos-tyndp-scenarios.eu/#download>

for Flanders (for the development of freight transport) and the strategic passenger model (for the development of passenger transport). The regional mobility plans developed within the Flemish transport regions (VlaWAMe Vervoerregio's – VVR) have been used to update the projections. Other Flemish policies have also been taken into account, including teleworking, fewer vehicles, increased use of electric bicycles and spatial densification³⁹⁴³⁹⁵. For heavy goods vehicle traffic, the extension of the mileage levy for the use of the road network has also been taken into account.

For heavy traffic, this represents an increase in vehicle-kilometres of 19 % in 2030 compared to 2015. For light traffic, this results in a stabilisation (0 %) over the same period. Sectoral objectives are thus achieved.

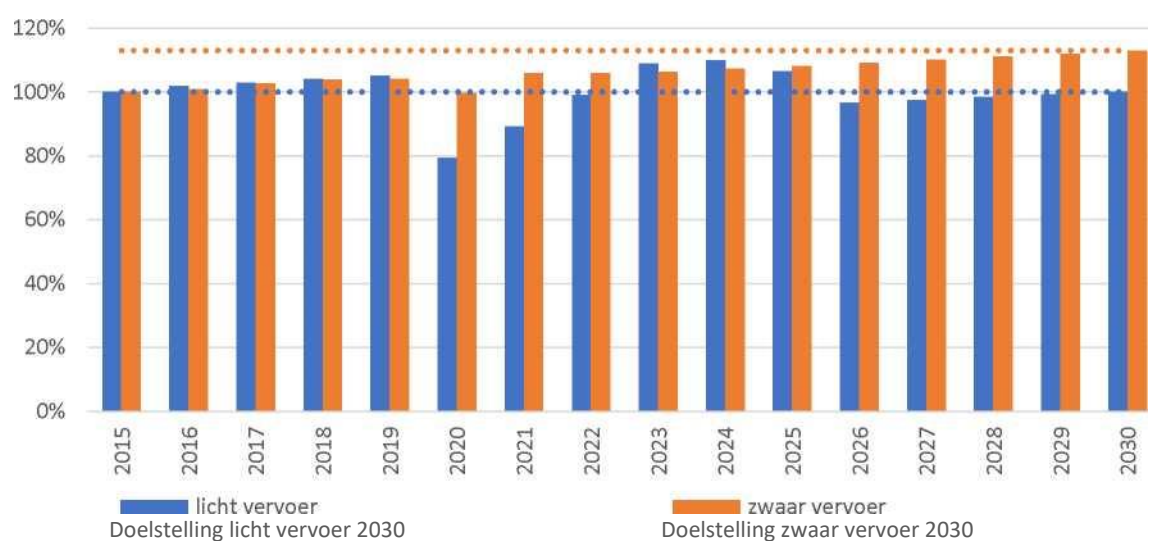


Figure 2-12. Evolution of vehicle kilometres of heavy and light traffic³⁹⁵ over the period 2015-2030 in the WAM scenario (expressed in% compared to 2015) (2023-2030 = WAM projections)

Figure 2-13 summarises the assumptions regarding the greening of the vehicle fleet in the WAM scenario for new vehicles. The WAM scenario for the passenger car fleet takes

³⁹⁴Calculations of Flemish measurements for the preparation of regional mobility plans (MOW, 2022)
³⁹⁵Heavy transport = heavy goods transport and buses, light transport = passenger cars, vans, mopeds and motorcycles.

into account a further increase in the number of zero-emission vehicles due to federal incentives for company cars and the intention to register only zero-emission passenger cars and vans from 2029 onwards. A number of new measures were also taken into account, including the incentive mechanism for new and second-hand zero-emission passenger cars and shared mobility, the exemption from the kilometric levy for zero-emission freight transport and the European proposal for heavy traffic standards. Figure 2-14 shows the number and share of zero-emission passenger cars in the total fleet for the WAM scenario. In 2030, the WAM scenario reaches 1,26 million zero-emission passenger cars, which is, converted as a percentage, to 34 % of the total fleet. For heavy traffic, we assume a 27 % share of zero-emission vehicles in 2030.

The blend of biofuels has been taken into account according to the following growth trajectory, as set out in the National Energy and Climate Plan 2021-2030³⁹⁶: 8.95 % in 2020-2021, 9.25 % in 2022, 9.55 % in 2023, 9.8 % in 2024, 10 % in 2025, 10.2 % in 2026 and 10.45 % in 2027-2030. As regards biofuels in transport, the competence for the blending mandate lies with the federal level. Reference is also made to the commitments of the Federal Authority to take additional greenhouse gas reduction and renewable energy measures by 1 January 2025 in order to meet the blending rate commitments made in the draft NECP approved at the Consultation Commission of 19 December 2018, in order to ensure that the adapted blending mandate does not have a negative impact on regional renewable energy and CO₂ emissions figures.

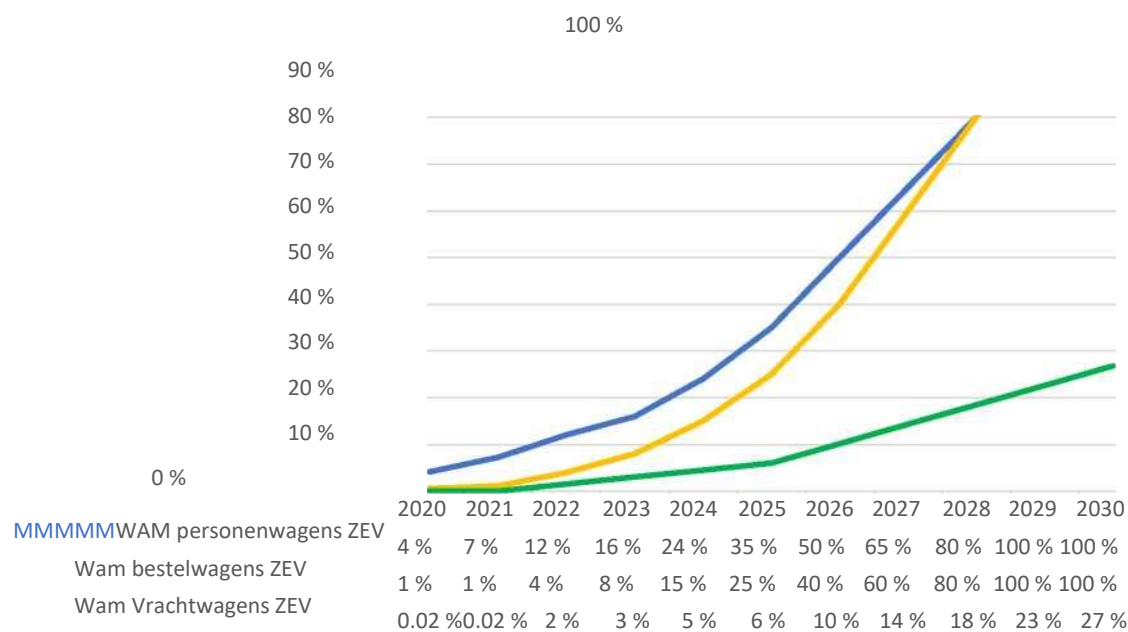


Figure 2-13. Share of zero-emission vehicles in registrations of new vehicles by vehicle category between 2020 and 2030 according to the WAM scenario

396<https://www.nationaalenergieklimaatplan.be/nl>

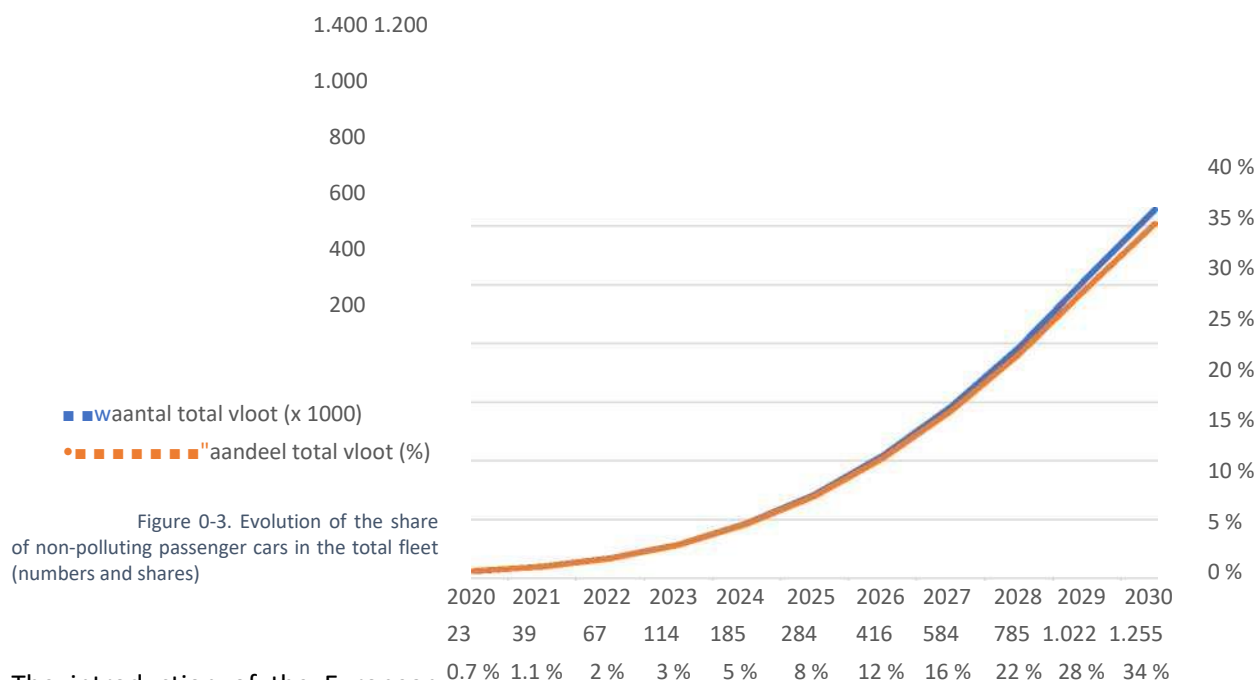


Figure 0-3. Evolution of the share of non-polluting passenger cars in the total fleet (numbers and shares)

The introduction of the European Emissions Trading System for buildings and transport (ETS BRT) in 2027 was also taken into account. Based on a³⁹⁷Flemish study, low price elasticity is estimated for the transport sector. The short-term impact of this new policy instrument is therefore very limited, with an expected price of EUR 45 per tonne of CO₂. The study estimates that the impact on transport demand is limited, with an additional reduction of 0.7 % in 2030. This additional reduction was included in the WAM scenario.

Off-road emissions come from machinery and off-road vehicles. They have been calculated using the OFFREM model.

The WAM scenario takes into account other modes that will absorb some of the growth in the future. The following assumptions aligned with the scenarios developed under the Mobility Vision 2040 have been retained:

- For the forecast calculations of inland waterway transport, an annual growth of 4.2 % in tonne-kilometres is expected between 2021 and 2030.
- The projected calculations for rail (diesel trains) take into account an annual growth between 2021 and 2030 of 5.3 % and 2.2 % for freight and passenger traffic respectively, and an equal distribution between diesel and electric rail traffic. This takes account of the fact that only 5 % of SNCB's offer is still diesel trains, the youngest of which will last for a maximum of 10 years. They will not be replaced at the end of their lifetime.

The necessary spatial conditions are created for climate-friendly mobility and sustainable accessibility.

- In the strategic vision of the Space Policy Plan for Flanders, the Flemish Government outlines the main lines of spatial development in the coming decades. The aim is to provide more people in 2050 with the opportunity to go to work or school on foot, cycling or possibly in the future with other sustainable modes of transport and to find basic services in their direct living environment. To this end, new places of living and work can be drawn as much as possible to collective transport nodes and infrastructure concentrations. Logistics activities should preferably be developed in regional logistic road nodes linked to the continental links of the trans-European transport network. Multimodal accessibility is very important in this respect.
- In the context of the implementation of the Strategic Vision of the Space Policy Plan for Flanders, the following measures will be taken, inter alia, to this end:

³⁹⁷ <https://www.vlaanderen.be/veka/studies/studie-over-de-uitbreiding-van-emissiehandel-naar-gebouwen-en-transport-2021>

- In well-located locations, spatial efficiency is qualitatively increased without exceeding space load capacity.
- We examine how functions (economy, industry, manufacturing, etc.) can be intertwined and pooled optimally in logistics centres;
- Proactive and forward-looking supply management for worksites is reviewed and implemented.
- The multimodal and maritime accessibility of the five international logistics clusters will be optimised.
- Based on the principles of Transit Oriented Development and proximity, more load the transport nodes with desired user profiles.
- From social, economic and employment clusters, engage in the supply and use of sustainable modes of transport. This, for example, through business mobility plans, school transport or logistic clusters, including the grouping of types of goods.
- Development of user-friendly and safe public spaces that meet the needs of the target groups, among others.
- Respond to evolving user needs and opportunities in terms of exchanges and transfer and transshipment points (including for urban logistics and ports) and develop a future-oriented transport and consolidation model.
- Regional sustainable mobility plans (including freight transport) and mutually reinforcing spatial plans. Here, different objectives frameworks are aligned and linked (including economic functions, residential functions, climate, air quality, emissions, clearing, noise, etc.).

Overall, in the transport sector, the WAM scenario projects a 35 % reduction in GHG emissions between 2005 and 2030.

However, significantly different trends can be observed in road passenger and freight transport (Figure 2-15). Thanks to the significant greening of the car fleet, emissions from passenger traffic are expected to decrease by 55 % over the period 2005-2030. On the freight transport side, the increase in vehicle-kilometres and the relatively smaller greening of the fleet lead to a 12 % reduction in emissions between 2005 and 2030. The WAM scenario fully meets the pre-determined sectoral objectives.

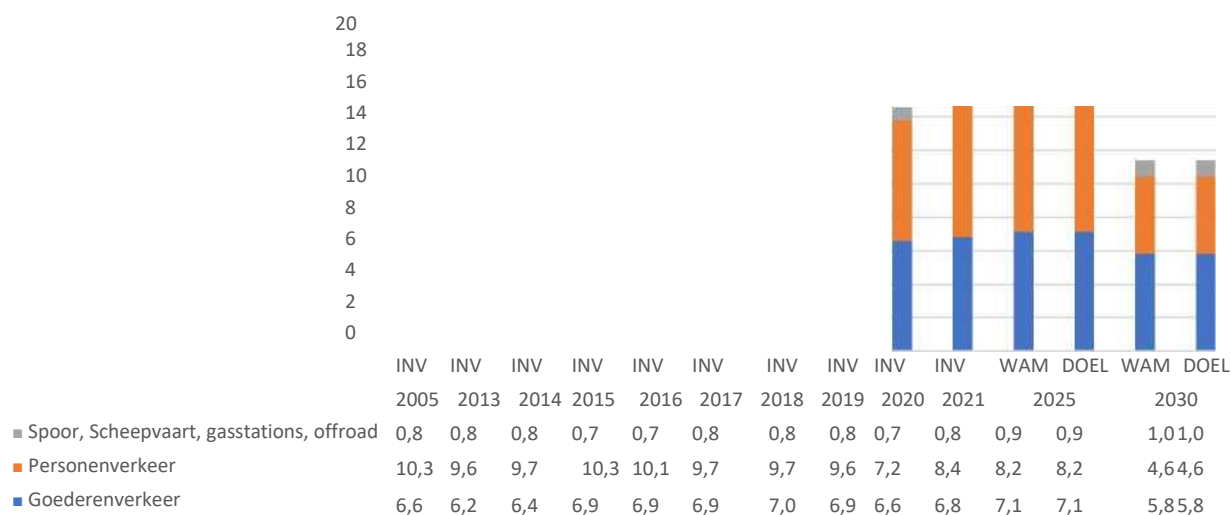


Figure 2-15. Overview of actual emissions, projections of the WAM scenario and sectoral targets 2005-2030 for the transport sector

	2005	2013	2014	2015	2016	2017	2018	2019	2020	2021	2025 WAM	2025 OBJE CTIF	2030 WAM	2030 OBJE CTIF
Emissions of gas with effect of greenhouse (Mtonne equivalent CO2)	17,7	16,6	16,8	17,9	17,7	17,3	17,5	17,3	14,6	16,0	16,39	16,3	11,4	11,4
Evolution from emissions of gases from greenhouse relative to 2005 (%)		- 6 %	- 5 %	+ 1 %	0 %	- 2 %	- 1 %	- 2 %	- 18 %	- 10 %	- 8 %	- 8 %	- 35 %	- 35 %

Table 2-1. Actual emissions, WAM projections and sectoral targets 2005-2030

Buildings (WAM scenario)

- Underlying sectoral objectives in the buildings sector

A number of additional measures in the residential sector have been agreed as part of the vision note on additional climate measures. The sectoral target for the residential sector has thus been set at 6.5 Mt CO₂ equivalent. For the tertiary sector, the target was set at 2.6 Mt CO₂ equivalent. Overall, this leads to a sectoral target for 2030 of 9.2 Mt CO₂ equivalent for the buildings sector.

- Overall explanation of projections in the buildings sector (WAM scenario)

The WAM scenario for residential and non-residential buildings has been aligned with the WAM scenario on energy efficiency and renewable energy.

The WAM scenario on energy efficiency and renewable energy is described in the sections Energy Efficiency and Decarbonisation – Renewable Energy respectively.

Off-road residential emissions (e.g. lawnmowers) were modelled using the OFFREM model.

The projections already take into account the introduction of the Emissions Trading System for buildings and transport (ETS BRT/ETS E2) from 2027 onwards. According to the study by Climact and the Öko Institute commissioned by VEKA in 2021³⁹⁸ only limited additional emission reductions are expected as a direct result of the ETS BRT/ETS 2 in the buildings sector in the short term (by 2030), due to the low short-term price elasticity.

	2005	2013	2014	2015	2016	2017	2018	2019	2020	2021	WAM DOEL 2025	WAM DOEL 2030
Offroad residentieel	0,05	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,07
Net-residentiële gebouwen	3,5	3,3	2,8	3,2	3,2	3,3	3,3	3,3	3,0	3,4	3,2	2,6
Residentiële gebouwen	12,2	11,0	9,2	9,1	9,2	8,8	8,8	8,5	8,0	9,1	8,3	6,5
Totaal	15,7	14,3	12,1	12,4	12,5	12,1	12,2	11,8	11,0	12,6	11,5	9,2

Figure 0-4. Overview of actual emissions, projections in the WAM scenario and sector targets 2005-2030 for the buildings sector

Overall, in the buildings sector, greenhouse gas emissions are reduced by 42 % in 2030 compared to 2005 in the WAM scenario (Table 2-5). In the scenario

³⁹⁸ <https://www.vlaanderen.be/veka/studies/studie-over-de-uitbreiding-van-emissiehandel-naar-gebouwen-en-transport-2021>

Wam, the reduction was 27 % and 46 % in 2030 in the non-residential and residential sectors respectively. The WAM scenario also fully meets the pre-determined sectoral objectives.

	2005	2013	2014	2015	2016	2017	2018	2019	2020	2021	WAM OBJEC TIF 2025	WAM OBJEC TIF 2030
Emission of gas with the effect of greenhouse (Mtonnes CO ₂ equivalent)	15,7	14,3	12,1	12,4	12,5	12,1	12,2	11,8	11,0	12,6	11,5	9,2
Emissions development greenhouse gases compared to 2005 (%)		— 9 %	— 23 %	— 22 %	— 21 %	— 23 %	— 23 %	— 25 %	— 30 %	— 20 %	— 27 %	— 42 %

Table 2-5. Real emissions, projections of the WAM scenario and sector targets 2005-2030 for the buildings sector

Additional policy measures will only start to be fully effective between 2025 and 2030. Indeed, the most important measures, namely the renovation obligation and the introduction of the minimum label requirement, require some time to be implemented. Table 2-6 summarises the estimated impact per policy measure in the residential and non-residential sectors.

Sector	Measurement	Entity	2023	2024	2025	2026	2027	2028	2029	2030	2023-2030 (cumulative)
Residential	mandatory minimum label Housing (via the Housing Code)	GWh	—	37	142	313	551	857	1.229	1.668	4.797
	Renovation obligation – residential	GWh	11	55	164	371	710	1.174	1.763	2.494	6.741
	mandatory minimum label Housing (via the Housing Code)	kt of CO ₂	—	8	29	64	112	173	247	334	966
	Renovation obligation – residential	kt of CO ₂	2	11	33	75	144	237	355	500	1.357
	minimum label mandatory for small non-residential buildings	GWh	—	223	445	668	890	1.113	1.335	1.558	6.232

Non-residential	Renovation obligation – non-residential	GWh	164	341	606	961	1.404	1.846	2.289	2.732	10.342
	mandatory minimum label for small non-residential buildings	kt of CO2	—	28	56	84	112	139	167	195	781
	Renovation obligation – non-residential	kt of CO2	30	63	112	177	259	341	423	504	1.909

Table 2-6. Savings by measure in the residential and non-residential sectors

Regarding the sustainability of heat demand, the share of heat pumps is expected to increase. In the buildings sector, the scenarios have been taken over from renewable energy projections.

Table 2-7 shows the evolution of the number of additional heat pumps (excluding air-air heat pumps).

	2023	2 024	2025	2026	2 027	2 028	2 029	2030
Residential	13.000	16.283	24.700	28.850	31.900	35.900	38.650	41.500
Non-residential	827	827	1.148	1.168	1.189	1.209	1.230	1 250

Table 2-7: Evolution of additional heat pumps

Agriculture (WAM scenario)

- Underlying sectoral objectives in the agriculture sector

As part of the vision note on additional climate measures, it was decided that the agricultural sector would make an additional 10 % effort to reduce greenhouse gas emissions. Converted, this represents an additional effort of 0.55 Mt CO₂ equivalent in 2030 compared to 2005. The agricultural sector target is thus set at 5.1 Mt CO₂ equivalent in 2030.

- Overall explanation of projections in the agriculture sector (WAM scenario) In the WAM scenario, greenhouse gas emission reductions that are achievable in the longer term have been calculated or estimated for a number of measures.

Based on the above approach for the WAM scenario, the overall greenhouse gas emissions of the agricultural sector in 2030 amount to 5.1 Mt CO₂-equivalent equivalent, i.e. a reduction of 29 % compared to 2005:

- enteric emissions are reduced by 0,3 Mton CO₂ equivalent (14 %) in 2030 compared to 2005.

These emissions will decrease as a result of the enteric Bovine Emissions Convention. The eco-feed management scheme to reduce methane under the CAP has a reduction potential of 0.05 Mt CO₂ equivalent compared to 2019. Initiatives to reduce enteric emissions are also being taken within the sector under the Convention. These initiatives, together with other policy effects, account for 0,15MtCO₂eq compared to 2005 or 0,35 MtCO₂eq compared to 2019, due to an increase in enteric emissions since 2005.

Finally, the target of a 30 % reduction in pig population by 2030 (which will be partly achieved through the purchase scheme), when implemented, has a technical reduction potential of 0.1 Mt CO₂ equivalent compared to 2005.

- Emissions from manure storage are reduced by 0,4 Mton CO₂ equivalent (22 %) in 2030 compared to 2005.

Methane emissions occur mainly during the storage of liquid livestock manure (dairy cattle, pigs), while nitrous oxide emissions are more likely to occur when solid manure is stored (farm manure, grassland, etc.) (suckler cows, cattle for slaughter, etc.).

Once achieved, the target of a 30 % reduction in pig herd by 2030 (partly achieved through the purchasing scheme) will offer a technical reduction potential for manure storage of 0.2 Mt CO₂ equivalent compared to 2019.

There is also a technical reduction potential of 0.17 Mt CO₂eq through technologies such as small-scale fermentation and other technologies with an impact between 2023 and 2030. Exploiting this potential requires, inter alia, additional digesters in dairy and pig farms with an impact on methane emissions. The implementation of the D-PAS, including, in the short term, the Circular, will create a legally secure framework for the assessment of permit applications for emission-neutral application on farms. This assistance, combined with the support provided by VLIF, will make a significant contribution. The reduction potential has been calculated on the basis of an inventory model for manure storage with the following assumptions:

Small scale fermentation is applied to 30 % of all dairy cattle, i.e. 50 % of dairy cattle in pits with a purin pit (60 % of the dairy herd). This equals 500 small-scale digesters on dairy farms by 2030.

- The number of installations is monitored on the basis of the EMAN expansion study, for farms whose manure bank declaration indicates that a digester on the farm is present on the farm. Based on 2020 figures, there are a total of 4 157 dairy farms, but 100 000 dairy cows (30 % of the total) are in the 500 largest dairy farms. An increase of 40 installations per year in the dairy livestock sector is initially foreseen when the preconditions are met.

small scale fermentation applied to 25 % of the number of pigs in farms with slurry pit (100 % of the pig herd), taking into account the 30 % reduction in pig herd. This is equivalent to 130 small-scale digesters in pig holdings.

Digesters	2023	2 024	2025	2026	2 027	2 028	2 029	2030	Total
Dairy cattle	15-25	35-45	50-60	65-75	65-75	65-75	65-75	69-89	429-519
Pigs	0	3-7	8-12	12-18	15-25	20-30	20-30	25-35	103-157

Table 2-8. Estimated number of additional small-scale digesters

Other developments (number of animals) and technologies can also contribute to reducing greenhouse gas emissions from manure storage in the future. Provided they have sufficient potential and are ready for practical implementation, this can also be facilitated in the future. Where appropriate, the assumptions of these projections may be further adjusted.

- Soil emissions are reduced by about 0,3 Mton CO₂ equivalent (or 24 %) in 2030 compared to 2005. This reduction will be achieved, inter alia, through the new Mestactieplan (Fertilisers Action Plan) MAP 7, which is still at the project stage (0,05 million tonnes CO₂ equivalent). A more concrete forecast calculation of soil emissions will be developed in the final update of this energy and climate plan. The implementation of CAP Strategic Plan measures will lead to a reduction in nitrogen fertilisation resulting in a decrease of 0.02 Mt CO₂ equivalent in 2030 compared to 2019.
- In the WAM scenario, in 2030, **energy emissions** in agriculture and horticulture will be 1,1 million tonnes CO₂ equivalent lower than in 2005.

This result will be achieved as follows:

Reducing the consumption of natural gas by phasing out cogeneration certificates when using fossil fuels, raising awareness through advice (e.g. conversion to other crops) and support (e.g. Energypedia, AKIS, etc.), rising energy prices, stopping pig farms, PAS measures, etc.

The vision **note** on horticulture in greenhouses, which focuses on energy saving technologies and encourages the transition from fossil energy sources to more renewable energy sources. Investments in energy saving and CO₂ technologies will be supported by additional budgets, in particular under the 2023-2027 CAP (VLIF investment aid, CMO for fruit and vegetables, etc.), and will be stimulated by the increase in the price of natural gas:

- Here, we consider both technologies with an impact on energy intensity and technologies that benefit from fuel change.
- More specifically, support for these investments will be increased under the new CAP.

All of this is further reinforced by:

- The expansion of the target group of the EBOs (Energiebeleid-reenkomsten – energy agreements) to the glasshouse horticulture sector.
- Strengthening energy legislation for moderate energy intensive companies to promote the use of energy scan and energy planning, linked to feasible measures.
- The development of mini-EBO for less energy-intensive farms, through the relevant sectoral federations, and the implementation of measures in the sector.

The potential budget needed is estimated on the basis of the support rate, the conversion factors expressed in GWh of energy savings, electrification, green energy, symbiosis with other sectors (waste heat, CO₂ residual) per unit invested (e.g. GWh/1000 kEUR).

The impact of VLIF investments in tonnes of CO₂ for EUR 1000 will be monitored (every two years) by technology group (budget, conversion factor, impact CO₂) on the basis of the rhythm of data provided under the CAP 2023-2027.

The following elements are included:

- 1) Decrease in energy intensity and activity (10 %) due to external environmental factors such as energy prices, demography, energy and environmental policy, PAS, including the purchase of pigs, etc. (-211 kton CO₂ equivalent)
- 2) Continue the current annual budget of the VLIF for energy investment aid until 2030: EUR 5 MILLION impact (-500 kton CO₂ equivalent in 2030)
- 3) Additional annual budget of the VLIF to be used on the basis of the request for investment support (+ EUR 6 million), supplemented by the additional budget RepowerEU (+ EUR 5 million). Depending on

the efficiency or the level of the conversion factor of the technology, reductions of up to -390 ktonnes CO₂ equivalent may be achieved.

Efforts are also being made to valorise related flows, reduce food losses, improve the sustainability of the fisheries sector, collaborate within the chain and organise public space.

Together, these policy effects also have a reduction potential for the agricultural sector as a whole.

These reductions are difficult to attribute to a specific item in the emission inventory and have therefore been accounted for in the energy emission categories, fermentation processes and manure storage.

In addition to the measures mentioned above in each category, external environmental factors such as the impact of the energy crisis and demography (age pyramid of the sector) will also play an important role in the future evolution of the sector in terms of emissions from the agricultural sector. These developments are well identified in the annual revisions of the VEKP.

If the energy emission reduction target is not possible, the total emission reduction target for the agricultural sector will have to be achieved at the level of non-energy emissions.

The WAM scenario fully meets the pre-determined sectoral objectives (Figure 2-38 and Table 2-9).

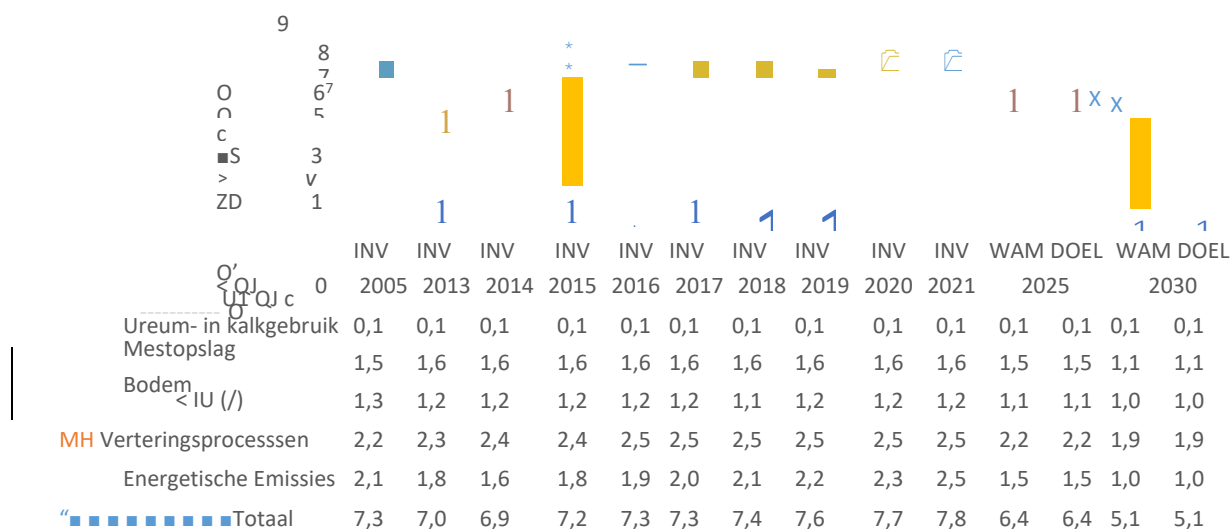


Figure 2-38 Overview of real emissions, WAM projections and agricultural sector targets 2005-2030

	2005	2013	2014	2015	2016	2017	2018	2019	2020	2021	WAM		WAM	
											2025	CTIF	2030	CTIF
											2025	2025	2030	2030
Emissions total of gas with effect of effect	7,3	7,0	6,9	7,2	7,3	7,3	7,4	7,6	7,7	7,8	6,4	6,4	5,1	5,1
(Mtonnes) equivalent CO ₂)														
Evolution of emissions of gases from greenhouse relative to 2005 (%)														

Table 2-9. Actual emissions, projections of the WAM scenario and sectoral targets 2005-2030 for the agriculture sector

— 4 % — 6 % — 2 % 0 % + 1 % + 1 % + 4 % + 5 % + 8 % — 12 % — 12 % — 29 % — 29 %

Industry concerned by the ESR (WAM scenario)

- Underlying sectoral objectives of the industry concerned by the ESR

For the industry sector covered by the ESR, an additional effort was decided as part of the vision note on additional climate measures, which would reduce emissions by 10 % in 2030, corresponding to a reduction of 0,36 million tonnes of CO₂ equivalent in 2030, converted. This additional effort is taken into account in energy emissions in the new WAM scenario.

For the other sub-sectors, the WAM scenario was not strengthened compared to the WAM scenario of VEKP 2019.

- Overall explanation on ESR industry projections (WAM scenario) Overall, the WAM scenario for greenhouse gas emissions is aligned with the WAM scenario on energy efficiency, renewable energy and sectoral policies for industry covered by the ESR.

In addition, greenhouse gases from ESR industry will be further reduced by focusing on greening energy carriers. To this end, further electrification and the use of biogas, sustainable biomass and solar thermal energy are encouraged. The establishment of an action plan on greening energy carriers and an implementation plan (as described in chapter 2.2.4.2.3) contributes to the achievement of the pre-defined targets for greening energy carriers in the Flemish ESR industry. This action plan would help achieve an average annual reduction in emissions of around 89 kton CO₂ equivalent^{over} the period 2023-2030 by greening energy carriers. In 2030, this will result in a reduction of 0.7 Mt CO₂ equivalent. Given the uncertainties related to these forecast calculations, the governance of the Action Plan foresees the development of Key Performance Indicators (KPIs) to allow for annual monitoring and, if necessary, timely adjustment of the pre-determined reduction target.

This would lead to a 1 % decrease in energy-related GHG emissions in ESR industry emissions in 2030 compared to 2005 (Figure 2-43) in the WAM scenario. This also achieves the sectoral target of 2,04 million tonnes CO₂ equivalent in 2030.

On the basis of a Flemish study carried out by Climact and the Öko-instituut on behalf of VEKA397, it is assumed, due to the low price elasticity, that the introduction of the Emissions Trading System for buildings and transport (ETS 2) in 2027 will not have an additional impact compared to the impact already calculated today on the greening of energy carriers.

Projections for nitrous oxide emissions from caprolactam production take into account, in the policy scenario, the full implementation of the measures as set out in Chapter 2.2.4.2.5. If the implementation of an additional end-of-pipe measurement is technically and economically feasible, by 2030 emissions of nitrous oxide may be reduced by 55 % compared to 2005.

In the WAM scenario, in addition to the implementation of the Flemish F-Gas Action Plan, the implementation of the additional measures mentioned in Chapter 2.2.4.2.4 is also taken into account, leading to a reduction in fluorinated gas emissions of up to 0,6 Mton CO₂equivalent.

Table 2-11: Actual emissions, WAM projections and sectoral targets for the industry sector covered by ESR 2005-2030

Overall, for the industry sector covered by the ESR, this translates into a 35 % reduction in greenhouse gases by 2030 compared to 2005 in the WAM scenario (Table 2-11)

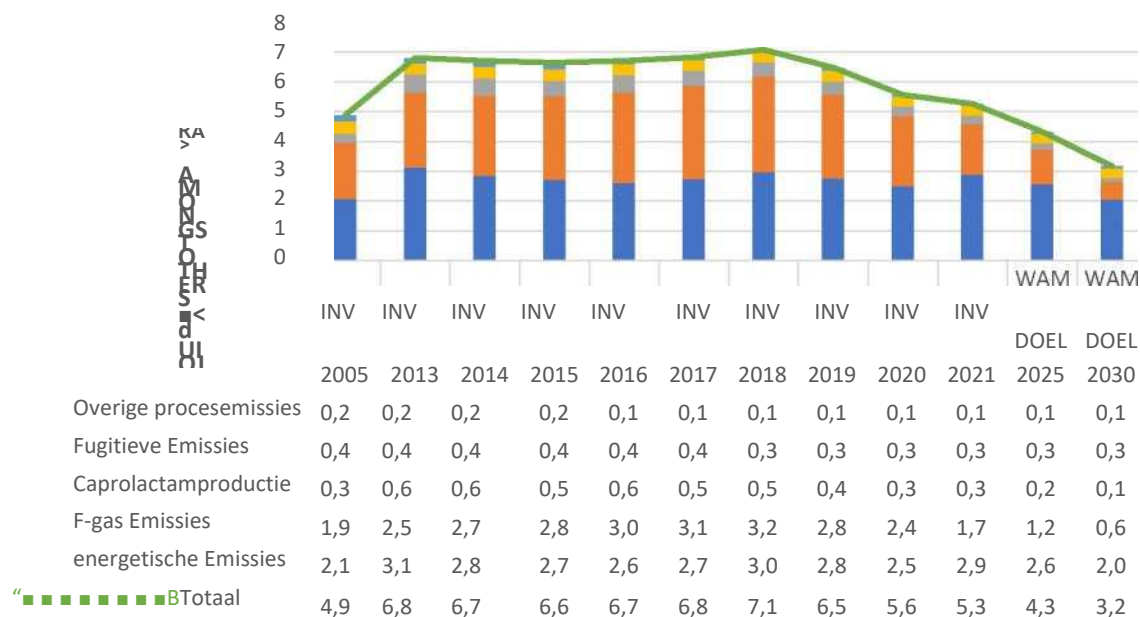


Figure 0-5. Overview of actual emissions, WAM projections and sector targets 2005-2030 for the sector of industry concerned by ESR

													WAM	WAM	
	2005	2013	2014	2015	2016	2017	2018	2019	2020	2021	OBJE	OBJE		CTIF 2025	CTIF 2030
Total greenhouse gas emissions															
of gas with an effect of 4,9 greenhouse		6,8	6,7	6,6	6,7	6,8	7,1	6,5	5,6	5,3	4,3	3,2			
(Mtonnes CO2equivalent)															
Evolution emissions from emissions with ratio to 2005 (%)															
			+ 39 %	+ 37 %	+ 36 %	+ 37 %	+ 40 %	+ 45 %	+ 33 %	+ 14 %	+ 8 %	— 11 %		—	
Waste sector (WAM scenario)															

- Underlying sectoral objectives in the waste sector

A WAM scenario has been developed only for waste incineration. As part of the vision note on additional measures for VEKP, it was decided to focus more on reducing residual waste for incineration by taking additional measures in terms of preventing food losses, promoting recycling and separate collection (CAP +, events policy, separate collection from businesses, etc.). In particular, the recyclable fraction of residual waste will be reduced by 75 %. This will avoid the

incineration of an additional 220 000 tonnes of residual waste.

This would amount to a 35 % reduction in the residual waste to be incinerated. As regards waste incineration, a reduction in the supply of combustible waste mainly results in reduced exports for incineration outside Flanders. It is only when the supply of combustible waste (for which self-sufficiency or proximity can be applied) becomes below the available incineration capacity that the capacity can be effectively reduced. This could lead to a 25 % reduction in Flanders' waste incineration capacity and thus in territorial greenhouse gas emissions from this sector.

- Overall explanation of projections in the waste sector (WAM scenario)

A greater reduction in incinerated waste is needed to reach -25 % of CO₂ emissions. Indeed, a reduction in the supply of waste to be incinerated results in the first place in a reduction in exports and only in a second step in a real reduction in incineration capacity in Flanders.

For residual household waste destined for incineration, 100 kg per inhabitant (-31 %) is targeted by 2030. For residual industrial waste, a similar decrease (by 30 %) is targeted by 2030.

To this end, the measures of the Materialenplan lokaal (LMP) will be fully implemented. The EIR accompanying the waste management plan shows that this is certainly necessary to achieve the residual waste reduction targets. These include the following actions:

- Waste prevention and product reuse are becoming more priorities than ever before. We are taking further steps to avoid packaging waste, we are pushing the use ban instrument further and we support the recycling sector to reach 8 kg of recycling per capita. Prevention and recycling are also more integrated into new and existing EPR schemes.
- By 2030, we want to selectively collect and treat organic and biological waste in residual waste, whether it comes from households or businesses.
- As regards residual industrial waste, we rely on strengthening source sorting by continuing the implementation and enforcement of the new VLAREMA 8 collection rules and introducing differentiated weight-based pricing for residual waste.

In addition, some of the actions of the Uitvoeringsplan huishoudelijk Afval (Implementation Plan for household and similar waste from companies) for the period 2016-2022 will also produce effects. For example, the amount of residual industrial waste to be sent to incineration will be further reduced in the coming years through the construction of source sorting facilities for unsorted residual waste. In addition, the increase in the tax (since 2021) on residual industrial waste sent for incineration, and the doubling of this tax in the event of a derogation from the incineration ban (since 2023), will continue to have an impact in the coming years. At household level, the relatively recent expansion of CAP may still have an effect.

Lokaal materialen provides for a 30 % reduction in residual waste for the period 2023-2030 (LMP). If the implementation of the WMP proves insufficient to reduce emissions from waste incineration by 25 % by 2030, we will also consider further measures:

- Increasing plastic sorting and recycling capacity in Flanders by 2030.
- VLAREMA contains a specific framework for separate collection of construction and demolition waste

Emissions from the conversion of waste into compost have remained almost stable since 2000 and projections until 2030 follow the same trend. Given their limited importance, these broadcasts will not be discussed in detail in this document.

Energy emissions in the ESR sector fluctuate around 0,1 Mton CO₂ equivalent and change only to a very limited extent depending on electricity generation (ETS) and fuel mix. Non-ETS CHP emissions showed a decrease between 2005 and 2021 – mainly due to a decrease in the number of cogeneration units in collaboration with the energy⁴⁰⁰ sector – and stabilisation at the 2021 level for the coming years.

⁴⁰⁰In recent years, the agricultural sector has seen the replacement of cogeneration installations managed in collaboration with the energy sector by self-managed CHP plants. Where relevant, the related emissions are attributed to the agricultural sector and not to the energy sector.

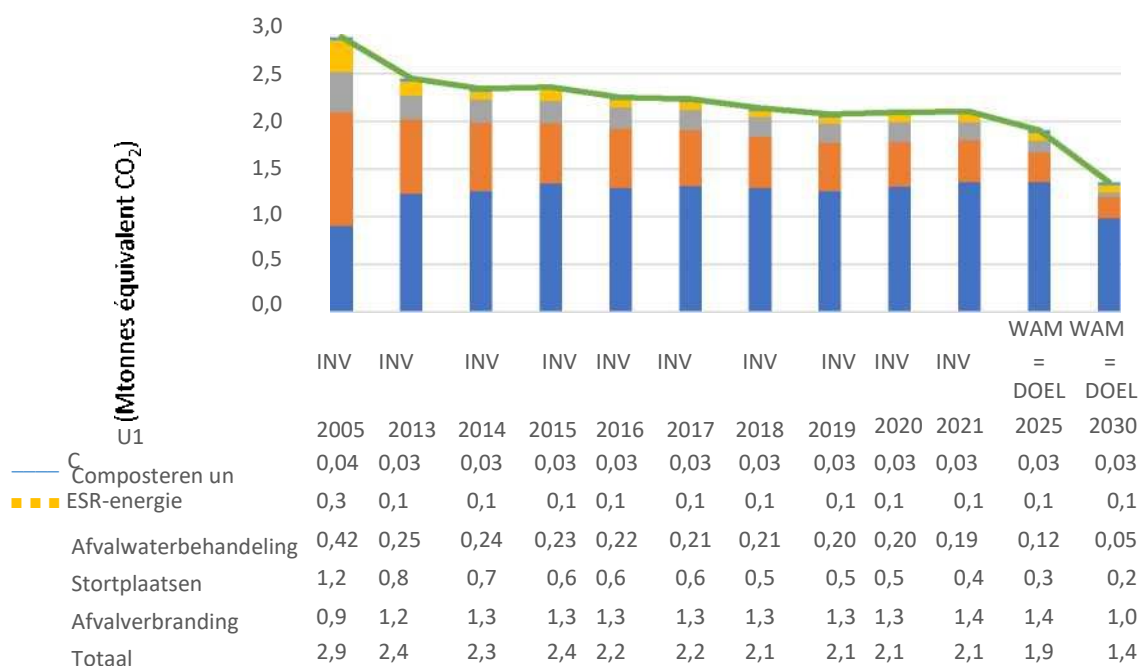


Figure 0-6. Overview of actual emissions, projections of the WAM scenario and sectoral targets in the waste sector 2005-2030

Overall, over the period 2005-2030, emissions from the waste sector are expected to decrease by 53 % in the WAM scenario. In 2030, landfill emissions will be reduced by 81 % compared to 2005.

	2005	2013	2014	2015	2016	2017	2018	2019	2020	2021	WAM = OBJECTIVE 2025	WAM = OBJECTIVE 2030
Total emissions of greenhouse gas emissions (Mtonnes equivalent CO ₂)	2,9	2,4	2,3	2,4	2,2	2,2	2,1	2,1	2,1	2,1	1,9	1,4
Emissions development emissions compared to 2005 (%)	—	15 %	19 %	18 %	22 %	22 %	26 %	28 %	27 %	27 %	34 %	53 %

Table 2-12. Actual emissions, projections of the WAM scenario and sectoral targets in the waste sector 2005-2030

LULUCF (WAM scenario)

- Sectoral LULUCF targets

‘Land use, land use change and forestry’ (LULUCF) is a greenhouse gas inventory sector that covers the emission and storage (immission, capture, sequestration) of greenhouse gases from land use, land use change and forestry activities.

The target applicable to all Member States for the period 2021-2030 is the no-debitrule. This means that existing carbon stocks at the beginning of the period must, according to the LULUCF Regulation (Regulation (EU) 2018/841), be kept at least at the end of the period, subject to the flexibility foreseen. This does not mean that no longer any land

use category can cause emissions, but that carbon stocks as a whole cannot decrease⁴⁰¹. In particular, credits (carbon sequestration) from a certain land use category can be used to offset a throughput (carbon emission) in another land use category.

The LULUCF Regulation sets the annual net emissions or net sequestration for two sub-periods, namely 2021 – 2025 in 2026 – 2030. Member States recording a surplus receive credits in this case and can sell them to Member States making a debit. Another option is to use these appropriations – to a limited extent – to meet the objective of the Effort Sharing Regulation (ESR)⁴⁰². Conversely, a potential shortfall has to be compensated by purchasing LULUCF credits from Member States (or regions) with a surplus or using – without limitation – its own emission allowances from ESR sectors.

A revision of the UTCFATF Regulation was adopted by the Council on 28 March 2023. Following the revision of the LULUCF Regulation, the no-debit rule will be adjusted from 2026 onwards, thus abandoning the accounting rules. For the calculation of the LULUCF inventory in the period 2026-2030, net emissions/storage shall be used, without applying certain accounting rules. The new target for 2030 is expressed in terms of additional storage to be achieved compared to the average storage of 2016-2018. For Belgium, this figure was set at **-320 kt of additional storage CO₂ equivalent by 2030**, in addition to the average storage (negative emissions) in the period 2016-2018, which for Belgium was - 1 032 kt CO₂ equivalent (based on figures submitted in 2020).

Flanders aims to meet the requirements of the new regulation in a Belgian context, i.e. the no-debit rule for 2021-2025, and to contribute to the additional storage of 320 kt CO₂ equivalent by 2030.

By the end of 2023, we will ensure that the optimisation of data and emission inventory, differentiation in land take and the challenges related to the implementation of the proposed measures are clear. For land take, the share of cropland, grassland, forests and wetlands in the uncovered part of land take will be specified and it will be examined how measures that can contribute to LULUCF in the land take area (e.g. green roofs) can be included. At the same time, the exercise in which we explore how land take can be defined in a more differentiated way (e.g. a park on a coated area) will also have been completed.

⁴⁰¹Taking into account the accounting rules described in the LULUCF Regulation.

⁴⁰²This flexibility – from LULUCF to ESR – for Belgium as a whole amounts to 380 kton CO₂ equivalent per year

Projections

Greenhouse gas emissions from LULUCF are generally deducted from changes in land use and carbon stocks of soil and biomass over time (see diagram). LULUCF projections – presented until 2040 – are based on an extrapolation of recent trends. Projections are used to make a forecast of future emissions reported in future emission inventories. The projections presented here are therefore based on the latest available data and the same calculation methodology and basic assumptions as those used in the LULUCF Emission Inventory and documented in the National Inventory Report (NIR) of 2021 and 2022.

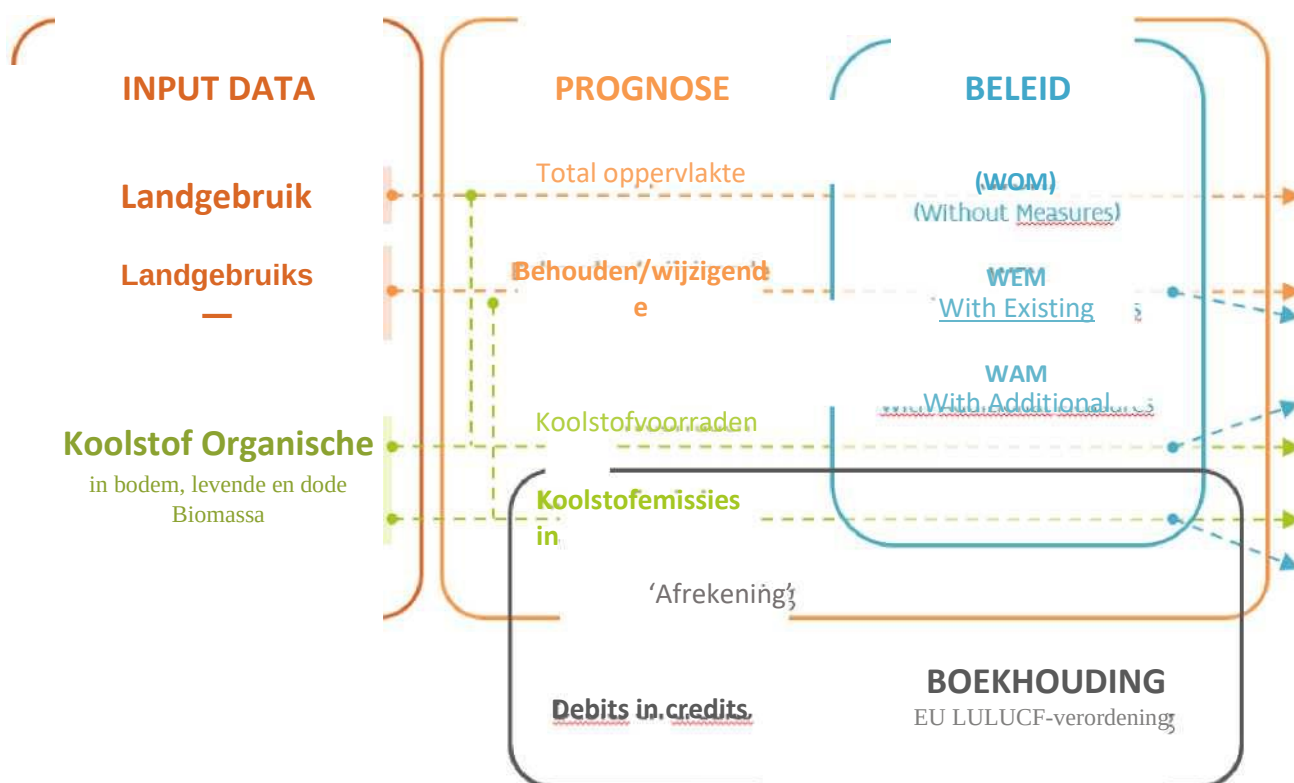


Figure 2-49 Schematic overview of the process for calculating LULUCF projections in terms of carbon emissions and removals and derived from the corresponding LULUCF result after application of the accounting rules⁴⁰³ set out in the LULUCF Regulation.

- Assumptions and simplifications

The development of projections is based on a number of assumptions and simplifications that need to be taken into account for a correct interpretation of the results, as well as for a good understanding of the subsequent implementation of the policy effects:

- The basic emission inventory data (see Figure 2-48) show an erratic pattern which is not explained.
- Data on land use areas and land use changes are currently extracted from the established 'land use matrix'. This is a 6 799-point dataset distributed throughout Flanders according to a regular grid. Each point is assumed to represent a fixed area of 199 ha. Documented land-use change is compared to the reference year 1989. This leads to limitations when it comes to calculating areas that have undergone several changes in land use since 1989. The use of a more detailed mapping to obtain land use data under LULUCF is the subject of a research project in the Department of Environment.
- According to the IPCC Guidelines, a transition period of 20 years is assumed for all carbon changes caused

⁴⁰³Still valid only for the period 2021-2025

by conversions between different land use categories, with the exception of carbon loss in living and dead biomass during deforestation, for which immediate disposal is assumed. All emissions or removals from land use changes shall be spread over 20 years. Any (policy) intervention in this area therefore requires a minimum of 20 years to be fully effective.

- The projection of future land use areas and land use changes shall be made using a linear extrapolation of the trend established over the period 2009-2015. Indeed, the latest update of the UNFCCC Land Use Matrix dates from 2015. The 2021 emissions inventory presents data on land use between 2015 and 2019, but these have been obtained using the same linear extrapolation as used until 2040. Due to the absence of new data after 2015, very recent trends may not yet be visible in the projections. In this context, reference is made to the research carried out within the Ministry of Environment to refine land use data and to use consistent definitions. This would reduce the reliance on the UNFCCC land use matrix update for updated LULUCF projections.
- With regard to carbon stocks, projections are also based on the linear extrapolation of recent trends. As regards the storage of carbon in living biomass in wood, the 2019 emissions inventory made a major adjustment to *the carbon removal factor*, which affects projections. As regards the soil carbon stock in the different land use categories, a trend towards a steady decrease in soil carbon stock shall only be taken into account for cropland, grassland and land take. Forest and wet soil stocks are assumed to remain constant. All these assumptions correspond to those used to determine historical carbon emissions and removals as reported in the emission inventory.
- The calculations do not systematically distinguish between mineral and organic soils (e.g. organic soils such as peat). Only emissions from cropland and permanent grassland shall take into account the fact that the total area consists of mineral and organic soils, characterised by different carbon emission factors. Emissions or removals caused by land-use change (i.e. land-use category changes) imply that all changes occur on mineral soils. The latter hypothesis in turn implies that organic soils are never subject to changes in land use.
- The emission inventory methodology on which the current projections are based is too rough to allow estimates and assessments of the impact of Flemish policies and measures. Indeed, Flanders bases its policy on a much more accurate mapping (e.g. land use map) and other definitions (forests, land take, etc.) to conduct its policy.
- Moreover, the fact that the emission inventory and projections use only one generic emission factor for each land use category (forests, grasslands, cropland, wetlands, land take) limits the accuracy of calculations and the ability to take policy action accordingly. For example, green surfaces such as gardens, parks and golf courses in the category of land take in the emission inventory have the same storage factor as fully coated areas, while real carbon storage is often likely to be more important.
- More generally, there is therefore a need for a more detailed monitoring and projection system to direct more concrete policy measures according to LULUCF objectives (see table of possible policy actions). For example, we cannot currently include in the projections the – possibly beneficial – effects of additional wetlands, the prohibition of drainage in the vicinity of SPAs, various CAP eco-schemes, better protection of grasslands, clearing;
- In order to be truly able to act on the future, LULUCF must also **be able to work on (individual) measures** (permits, subsidies, PES, etc.) and their monitoring.

● Political Scenario (WAM)

The LULUCF projections themselves relate to projections of future greenhouse gas emissions taking into account the effect of existing and additional policies and measures. These measures are included in the ‘with additional measures’

(WAM) scenario.

Table 2-18 lists various LULUCF measures. Most of the measures listed cannot currently be calculated due to insufficient information available or because the methodology currently applied is too general to discern the possible impact of specific measures.

The calculation of LULUCF projections for the WAM scenario shall take into account the impact of the following policy objectives:

- Preventing deforestation and maximising the conservation of existing useful forests from 2021
- 10.000 ha of additional forests by 2030
- Strategic Vision of the BRV (Flemish Spatial Planning Plan)
 - Average additional daily land take is reduced to 3 ha by 2025 and to 0 ha by 2040
 - ‘ Instrument Decree’
 - ‘ Decree on reserve residential areas’
 - Conversion of signalling areas into WORG (open space zones vulnerable from a water point of view)

Feedingstuffs do more with the same space, reasonable densification, green-blue zoning, increase in green-blue levels (LEKP), etc.

- Promoting carbon storage by certain techniques and crops on agricultural land under the European Common Agricultural Policy (CAP)
 - Ban on burning stubble (mortification): 200 000 ha of cropland with an annual 0.4 % increase in soil carbon stock).

The supply of actual organic carbon (COE) on the basis of the annual cultivation plan.

- Eco-regime – Buffer banks: creation of grass buffer strips to control erosion, along sensitive landscape elements, and buffer strips with a mixture of grasses or flowers.

The outcome of the policy scenario (WAM projections) is presented in the figure below.

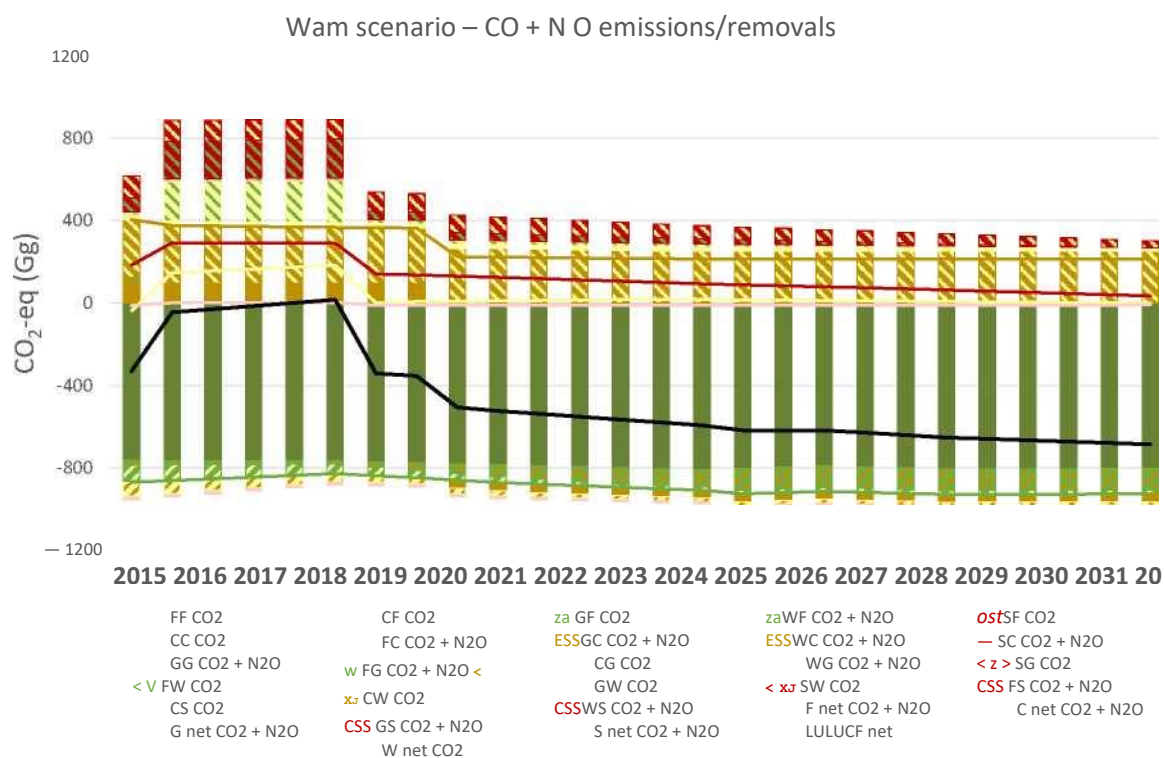
We see a tendency to increase net carbon storage in the future:

- Preventing deforestation removes a significant share of emissions and thus a very visible improvement in the overall LULUCF balance by 2021.
- We also see a visible additional increase in carbon storage in 2023 as a result of the ban on burning stubble, which means that permanent cultivated land is no longer an emission (positive emission) but a withdrawal (negative emission). Due to their limited scope (in terms of area and duration), the other measures calculated under the CAP have a limited impact.
- The objective of the BRV contributes more significantly – and over a longer period of time – to increasing net carbon storage.
- An additional afforestation logically creates an additional storage effect. While forest cover management in Flanders can clearly be an important lever in the control of LULUCF emissions, there are some reservations to this result:
- Since 1990, the Forest Decree prohibits, in principle, deforestation. This deforestation ban includes some

exceptions (e.g. deforestation in residential and industrial areas) for which forest compensation applies. Preventing deforestation therefore amounts in practice to a net zero loss of forest area. As no afforestation was observed in the period 2009-2015 – and this trend has been extrapolated in the future, the implementation of this measure as a net halt of deforestation amounts to an absolute cessation of deforestation.

If afforestation has indeed taken place in recent years, the effect of this measure is overestimated.

- The recent change in *the carbon removal factor* allows for a very favourable assessment of the impact of the measures on deforestation and afforestation.



2. Renewable energy

Estimated trajectories for the sectoral share of renewable energy in final energy consumption (2021-2030) in the electricity, heating and cooling and transport sectors

Production (GWh)	2021 Inventory	2022 projection	2023 —	2 024 —	2025 —	2026 —	2 027 —	2 028 —	2 029 —	2030 projection
Green heat	9.794	9.127	9.560	9.784	9.990	10.282	10.681	10.959	11.248	11.574
Green electricity	10.406	11.675	11.395	11.893	12.553	13.350	14.193	14.897	15.589	16.255
Biofuels in the transport	5.622	5.734	5.863	5.920	5.760	5.331	5.234	4.943	4.568	4.145
Total	25.822	26.537	26.818	27.596	28.303	28.963	30.107	30.800	31.405	31.974

Trajectories estimates for each renewable energy technology

The estimates of trajectories by renewable energy technology to reach the overall and sectoral renewable energy trajectories from 2021 to 2030 are presented below.

- Estimated trajectories for green heat production

Production (GWh)	2021 Inventory	2022 projection	2023 —	2024 —	2025 —	2026 —	2027 —	2028 —	2029 —	2030 projection
Water heaters and solar panels	178	184	190	200	205	209	217	221	224	227
Heat pumps (including thermodynamic water heaters)	1.760	1.833	2.108	2.389	2.701	3.035	3.398	3.804	4.236	4.691
Deep geothermal energy	0	0	24	24	24	24	49	49	49	99
Household biomass	4.208	3.401	3.380	3.190	3.000	2.810	2.620	2.430	2.240	2.050
Other biomass	3.647	3.709	3.857	3.980	4.060	4.204	4.397	4.456	4.499	4.507
Total	9.794	9.127	9.560	9.784	9.990	10.282	10.681	10.959	11.248	11.574

- Solar water heaters

The potential of solar water heaters is derived from the data in the EPB database and from the number of premiums granted by system operators. The annual number of additional solar water heaters has systematically decreased from around 7 400 in 2014 to 3 100 in 2021. The number of additional solar water heaters is expected to decrease further, as they are increasingly preferred for thermodynamic water heaters. Between 2022 and 2030, an average of 2 350 additional solar water heaters will be installed each year. Compared to the previous energy and climate plan, the production of green heat by solar water heaters is growing lower. This decrease is compensated by additional thermodynamic water heaters, whose sales have increased sharply in recent years.

The production of green heat by solar water heaters is estimated by multiplying the number of solar water heaters by an index of the required (roof) area and corresponding production. These indices are based on the information collected in the context of the Inventory of Renewable Energy Sources. It is assumed that a domestic solar water heater needs on average a roof area of 4.8 m² and has an average heat output of 0,37 MWh per m² per year. These are representative figures for solar water heaters used for domestic hot water (i.e. excluding space heating).

- Heat pumps

To encourage greater use of heat pumps, the cost-effectiveness of heat pumps in dwellings with decreasing heat demand and the integration of heat pumps into the electricity market and grid should be improved. This is possible, for example, by adopting a more flexible approach to heat pumps, which allows owners to react to cheaper energy prices through a digital meter.

The 2022 energy crisis has significantly increased interest in heat pumps. New measures will also allow the installation of additional heat pumps. The installation of a heat pump in the new buildings will increase considerably thanks to a number of measures decided by the Flemish Government. Since 2022, fuel oil boilers

have been banned in new buildings and existing oil boilers cannot be replaced if it is possible to connect to a natural gas network in the street. From 2023, low temperature heating will be mandatory and. From 2025, no new natural gas connections will be authorised, which will have a significant impact on the number of additional heat pumps in the new buildings. In addition, higher premiums are foreseen for the installation of (hybrid) heat pumps in existing houses. Due to these additional measures, the number of additional heat pumps (excluding reversible heat pumps L/L) is expected to increase each year from around 11 100 in 2021 to 42 750 in 2030.

L/L reversible heat pumps are also taken into account in line with the provisions of the EU Renewable Energy Directive. 50 000 additional installations are expected per year from 2023 onwards.

Account is also taken of a gradual increase in annual replacement of water heaters with thermodynamic water heaters, from 5 400 in 2022 to 10 000 in 2030.

- Deep geothermal energy

Deep geothermal energy is still limited in Flanders to a few projects. These projects show that harnessing the potential of deep geothermal energy requires a longer period of development and greater investment. The production of green heat from 3 installations with drilling between 500 and 3 500 metres deep and a corresponding district heating network served as a basis for determining the potential until 2030.

- Biomass and biogas

The potential of green electricity from biomass and biogas was identified in Vito's study on the potential of bioenergy in Flanders in 2030 (April 2017). A realistic growth projection for 2030 has been determined in consultation with experts. Seven biomass value chains were selected in the study. In this context, the study looked at the flows used in existing bioenergy facilities in Flanders and recent developments in the commercial market. Combustion and fermentation are the basic conversion technologies chosen for Flanders until 2030.

It was important, when determining the potential, to make a realistic estimate of the evolution of the existing bioenergy park. This is due to the fact that each existing installation will have 10 years for the period up to 2030. For installations with a start-up date before 2013, support will be terminated after the initial aid period and the legally guaranteed possibility of extension, as provided for in the Energy Decree (i.e. a possible extension based on full load hours and two extensions of 5 years). As each installation individually assesses whether or not to continue the operation, work has been done for the already existing value chains with a range ranging from a complete shutdown to the status quo of the existing bioenergy park. In addition to the evolution of the existing fleet, the possibilities for extending the different value chains were examined.

For these value chains, the potential as an energy source is often linked to challenges in other policy areas such as agriculture and materials.

For wood-fired residential heating, the contribution of green heat is assumed to decrease due to the replacement of old wood-fired stoves with more efficient installations. As a result, the same amount of heat is supplied while consuming less wood. Eurostat's methodology takes into account wood consumption for the target and not only heat production but also heat losses (stack). This implies a decrease in the contribution to EU renewable energy targets due to wood consumption by households. This is in line with the Flemish Air Policy Plan 2030 (Vlaams luchtbeleidsplan 2030), which envisages reducing emissions from residential wood combustion by at least 50 % by 2030.

As regards waste incineration, a significant transfer from green electricity to green heat is planned in the form of district heating networks. Waste was reduced by 25 % by 2030 thanks to waste policy measures. The incineration capacity we maintain in the meantime must have the highest possible energy efficiency and the lowest possible emissions.

In cooperation with the partners concerned, there is a strong emphasis on the compulsory separate collection of organic and biological waste from large and medium-sized waste producers. As a result, the potential for fermentation increases. The pre-fermentation of LFJ waste, before composting, releases biogas which can then be recovered for renewable energy production. In this respect, it is expected that some composting plants for LFJ waste will be (partially) processed into pre-fermentation with post-composting.

- Estimated trajectories for green steam production

Production (GWh)	2021 (inventory)	2022 (projection)	2023 —	2 024 —	2025 —	2026 —	2 027 —	2 028 —	2 029 —	2030 (projection)
Solar	4.048	4.600	4.926	5.377	5.852	6.327	6.802	7.277	7.752	8.227
Wind (onshore)	3.130	3.423	3.803	4.087	4.270	4.639	5.054	5.343	5.630	5.916
Hydropower	7	9	9	9	9	9	9	9	9	9
Biomass	2.482	2.916	1.875	1.626	1.618	1.560	1.502	1.444	1.387	1.329
Biogas	739	728	782	793	804	815	826	823	812	774
Total	10.406	11.675	11.395	11.893	12.553	13.350	14.193	14.897	15.589	16.255

- Solar photovoltaic

As the installation of solar panels can be achieved with limited subsidy costs (more direct grants for installations up to 25 kW, the vision of the Solaire Plan is being pursued and intends to further realise this potential. In this respect, account is taken of other secondary conditions such as integration into the network, and the potential for implementation in a stable offer (stable market for suppliers and installers).

A detailed potential has been identified on the basis of the Solar Card. This map shows the available roof surfaces, while limiting itself to roof surfaces with optimal orientation, without shading and sufficient surface.

Through the Solar Card, a potential of 57 GWe has been identified in the 'ideal' aptitude class with incident solar radiation of more than 1 000 kWh/m² peryear. The additional potential of the proficiency class 'usable' with incident solar radiation between 800 and 1 000 kWh/m² peryear is 15 GWe. At the end of 2022, the installed solar panel capacity was around 5 GWe. The solar card shows that there is enough potential on the roofs to achieve significant growth.

Over the period 2024-2030, a new annual growth of 500 MWe is estimated to reach a capacity of 8,9 GWe of solar PV in Flanders in 2030. This objective is in line with the potential identified by the Solar Card and the possibilities for grid integration and balancing. The annual growth of photovoltaic energy is fostered, inter alia, by requiring large electricity users to produce photovoltaic energy, by the mandatory share of renewable energy in new and large existing non-residential buildings through the non-residential EPC and by supporting investment through the green energy tender.

This gives, for the coming years, the following evolution of the total capacity of PV installations (MW):

Ann ed	2021 (inventory)	2022 (provisional)	2023 (projection)	2 024	2025	2026	2 027	2 028	2 029	2030 (projection)
MW	4.372	4.960	5.410	5.910	6.410	6.910	7.410	7.910	8.410	8.910

- **Wind energy**

The Vision Note on the 2025 Environmental Plan approved by the Flemish Government on 11 December 2020 builds on the achievements and objectives of the previous Windkracht 2020 Eolien Plan. Taking into account the growth of wind turbines at the new sites and growth through repowering on existing sites, the projected onshore wind capacity is 2.5 GW by 2030. In 2021 and 2022, wind power installed an additional capacity of almost 200 MWe of wind turbines. An additional capacity of 150 MW for 2023 is also taken into account. This will accelerate the realisation of the potential in the period 2021-2023.

As part of this plan, it is decided to maintain the annual growth of 108 MW from 2024, bringing the projected capacity to 2.642 GW by 2030.

This gives the following evolution for the coming years of the total capacity of onshore wind turbines (MW):

annealed e	2021 (invade)	2022 (provisoire)	2023 (projection)	2 024	2025	2026	2 027	2 028	2 029	2030 (projection)
MW	1.569	1.736	1.886	1.994	2.102	2.210	2.318	2.426	2.534	2.642

- **Biogas**

These are energy sources available at national level, which contribute to the other objectives of security of supply and grid stability, manure and nutrient treatment, circular economy, soil carbon stocks, etc.

From this point of view, it is desirable to support the use of available national flows, while taking into account the desired transfer to green heat (in combination or not with qualitative cogeneration). This potential is already being exploited to a significant extent and therefore no significant increase is expected compared to other potential already mentioned.

For biogas, production remains more or less stable.

- **Biomass**

For large wood-based biomass installations, it is assumed that the capacity foreseen in the 2020 energy plan will be maintained by 2030. According to the latest available information, the Rodenhuă plant, which produces wood pellets, will be decommissioned in 2023 and biomass waste treatment plants are expected to switch from green energy to green heat through heat networks. This explains the decrease in the production of green electricity from biomass.

In addition, reservations are included to take into account the impact of the use of biomass on sustainability objectives, the more cost-effective use for green heat production, the limited availability of biomass and the affordability of targets.

- **Biofuels**

The incorporation rate was applied to fuel consumption taking into account a WAM scenario and an increased

incorporation rate of 8.95 % (excluding double counting of advanced biofuels) from 2020 to 10.45 % in 2030. An increase in the share of electric transport is taken into account, which explains a decrease in the absolute use of biofuels by 2030.

Most biofuels in transport are covered by federal strategic plans. The competence for the incorporation obligation lies at federal level. In addition, the relatively limited use of renewable energy sources is expected to stabilise (compared to green heat and electricity production), with a shift from first generation to advanced biofuels.

Reference is also made to the commitments of the Federal Authority to take additional greenhouse gas reduction and renewable energy measures by 1 January 2025 in order to meet the incorporation rate commitments taken into account in the draft NECP approved at the Consultation Commission of 19 December 2018, in order to ensure that the adapted blending mandate does not have a negative impact on regional renewable energy and CO2 emissions figures.

At the conciliation committee of 30 November 2022, it was decided that the Federal Government would report annually on any difference between the rate of incorporation of the draft NECP (see Conciliation Committee of 19 December 2018) and the incorporation rate achieved.

Actual incorporation rate	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	8.95 %	9.25 %	9.55 %	9.80 %	10.00 %	10.20 %	10.45 %	10.45 %	10.45 %	10.45 %

Estimated trajectories for bioenergy demand

For priority applications for biomass in the Flemish Region, we refer to the Action Plan for the sustainable management of (residual) biomass flows (Actieplan Duurzaam Beheer van Biomassa (rest) stromen), developed by OVAM. We expect significantly lower use of biomass for electricity production in the period 2021-2030. When it comes to heat production, we expect lower use of biomass in households due to reduced wood consumption due to more efficient heating appliances. The Actieplan Biomassareststromen also contains a framework and measures for the sustainable use of forest biomass.

Estimated trajectories for renewable energy in district heating

The use of district heating in Flanders is historically very low. The use of heating networks in Flanders is systematically developed. However, since the introduction in 2013 of financial support through regular tenders for green heat, waste heat, district heating and geothermal energy, a significant number of new projects have been carried out and are still planned.

Thanks to current heat networks, approximately 1 100 GWh of heat per year are supplied to [in 2022]. Based on the projects submitted under the various calls, an estimated 1 300 GWh of additional heat to be supplied via district heating networks by 2030, including around 700 GWh of green heat. As most of the green heat supplied by district heating will come from biomass and waste incineration, for which significant additional growth is already foreseen, no additional renewable energy potential from district heating is taken into account. District heating is an instrument to use renewable [and circular] energy sources, and this use is already taken into account per heat source.

In line with the Government Agreement 2019-2024, the call for green heat, waste heat and heat networks was assessed in 2020-2021. During this process, the different sub-calls were merged into a single call without sub-categories so that all projects can be ranked together on the basis of cost-effectiveness and that the available budget is maximised. The costs of investments already subsidised or compulsory are not (or no longer) taken into account. Support for low temperature heating networks has been reinforced and the calculation of CO₂ emissions has been adapted to technology.

Flanders supports local administrations in the development of a Heat Plan. The Warmtekaart 2020 (full assessment of the efficiency potential and renewable energy potential under RED II and EED) has made public detailed heat demand data. The VVSG Climate network worked on these data to create the inspiration map for thermal zoning. VEKA and Netwerk Klimaat have also developed the Heat Guide to encourage local administrations to act as imprint administrators. Thanks to these tools and the financial support of the Energy and Climate Local Pact (LEKP), local administrations can work on developing their Heat Plans.

In 2021, 47 % of the heat from these district heating networks was supplied by renewable energy.

3. Energy efficiency

Projections for residential buildings

Up to and including 2021, the WAM scenario uses the actual energy consumption of the energy balance. From 2021, fuel consumption will be determined using a simulation model for the Flemish building stock. For electricity demand, Primes 2000 is used. In addition, the following additional measures are assumed:

- Obligation to renovate the dwellings.
- Introduction of a minimum energy label for housing.
- Maintenance and adjustment of heating systems.
- Increase in the number of energy premiums for insulation measures through MijnVerbouwpremie.
- Measures relating to demolition and reconstruction.

- Duration of requirements for substantial energy renovations.
- Evolution of heat pumps and thermodynamic water heaters (aligned with the WAM renewable energy projections).
- Introduction of the European Emissions Trading System for buildings and transport: (ETS BRT) from 2027: According to a Flemish study⁴⁰⁴, this new policy instrument is expected to have no impact on residential buildings until 2030, with an expected price of EUR 45 per tonne of CO₂. There are two main reasons why even a price of EUR 100 per tonne of CO₂ would only lead to modest reductions in this sector by 2030. First, the (residential) building sector is characterised by non-commercial barriers that prevent the carbon price from unlocking some reduction potential, even if they are profitable. In addition, the building sector is characterised by longer investment cycles, which means that some reduction measures take time to be implemented. Both factors lead to low short-term price elasticity (until 2030).

This results in final energy consumption of 2 030 GWh for 43,973.



Figure 4-2. Evolution of final energy consumption in the residential sector 2005-2030 (GWh)

	2005	2006	2007	2008	2009	2010	2011	2012	2013
GWh	65.090	64.932	62.419	62.283	62.177	67.631	56.396	59.116	
	2014	2015	2016	2017	2018	2019	2020	2021	
GWh	53.669	54.246	55.408	53.581	53.629	52.442	50.424	56.948	
	2022	2023	2024	2025	2026	2027	2028	2029	2030
GWh	55.640	54.524	53.490	52.406	51.220	49.546	47.934	46.022	43.973

Table 4-2. Evolution of final energy consumption in the residential sector 2005-2030 (GWh)

⁴⁰⁴ <https://www.vlaanderen.be/veka/studies/studie-over-de-uitbreiding-van-emissiehandel-naar-gebouwen-en-transport-2021>

⁴⁰⁵ some examples:

- Growth scenario for education <https://www.vlaanderen.be/statistiek-vlaanderen/onderwijs-en-vorming/prognose-van-de-schoolbevolking>
- Growth scenario for care: <https://www.vlaanderen.be/statistiek-vlaanderen/onderwijs-en-vorming/prognose-van-de-schoolbevolking>

Projections for non-residential buildings

Up to and including 2021, the WAM scenario uses the actual energy consumption of the energy balance. From 2022, energy consumption is based on a simulation model of the tertiary sector. Before, sectoral growth rates were set on the basis of a number of available policy documents⁴⁰⁵. In addition, the following additional measures are assumed:

1. Introduction of the CPE for non-residential buildings and the related renovation obligation. The renovation obligation stipulates that a notarised transfer must reach a certain minimum label within five years. Based on historical transactions, a gradual trajectory of investments in energy saving measures has been calculated.
2. Introduction of minimum energy performance labels for small non-residential units, to be carried out independently of the transfer. For large non-residential units, a calculation will be made on the basis of the final VEKP.
3. The evolution of heat pumps in the tertiary sector has been aligned with the renewable energy projections of the WAM scenario.
4. The impact of the introduction of ETS BRT in 2027 was estimated on the basis of the Flemish study (see also Chapter 4.3.2.1). Due to the low price elasticity, an expected price of EUR 45 per tonne of CO₂ is expected to have a very limited impact on tertiary buildings. As a first step, the introduction of this measure would encourage the transition to fossil-free heating systems and would not have an impact in the short term (until 2030) on the number of renovations.

This results in final energy consumption of 2 030 GWh for 24,110.

⁴⁰⁵<https://www.vlaanderen.be/veka/studies/studie-over-de-uitbreiding-van-emissiehandel-naar-gebouwen-en-transport-2021>

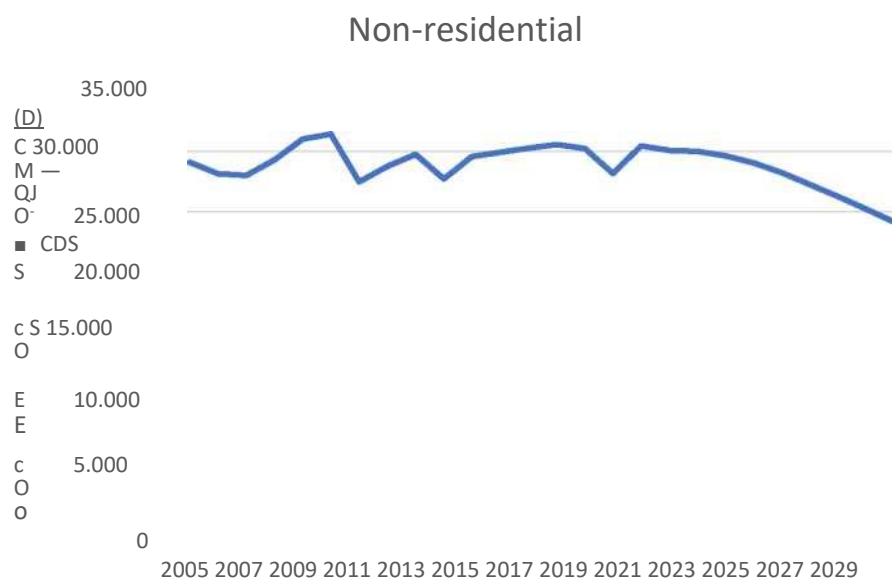


Figure 4-3. Evolution of final energy consumption in the non-residential sector 2005-2030 (GWh)

	2005	2006	2007	2008	2009	2010	2011	2012	2013
GWh	29.084	28.137	28.011	29.296	31.006	31.425	27.470	28.760	29.738
	2014	2015	2016	2017	2018	2019	2020	2021	
GWh	27.704	29.568	29.914	30.271	30.556	30.223	28.158	30.460	
	2022	2023	2024	2025	2026	2027	2028	2029	2030
GWh	30.074	29.996	29.603	29.020	28.228	27.239	26.224	25.181	24.110

Table 4-3. Evolution of final energy consumption in the non-residential sector 2005-2030 (GWh)

Projections for industry

The WAM scenario takes into account the following additional measures in the period 2021-2030, as part of the enlargement of the current instruments:

- Increased EBO (see ESR industry chapter on decarbonisation dimension) which, by broadening the target group and tightening the energy efficiency criterion, allows for equal annual energy efficiency gains over the lifetime of the company. It is assumed that the total energy consumption of companies adhering to the EBO of VER (of the Flemish energy intensive industry) and non-VER companies is the same as that of the current EBO.
- Through an extended legislative framework (lowering the lower limit of the obligation to draw up an energy plan in line with 0.1 PJ and tightening the profitability criterion) for energy-intensive companies, companies that do not adhere to the EBO will also make annual energy efficiency improvements.
- The ecological premium has been reformed and the impulse programme for the greening of heat demand (see ESR industry chapter in the decarbonisation dimension) will contribute to the enhanced targets of achieving an average annual reduction over the period 2023-2030 of an order of magnitude of

89 ktonnes CO₂ equivalent through the greening of energy carriers in the ESR industry.

- Moreover, for low energy intensive industry, mini EBO has been replaced by reinforced legislation for non-energy intensive companies, complemented by a voluntary accompanying instrument, the Sectoral Federation Agreement (sectorfederatieovereenkomst – SFO) (see chapter on ESR industry in the decarbonisation dimension). By analogy with tertiary buildings (Chapter 4.3.2.2), due to the low price elasticity, it is assumed that the introduction of the BRT ETS in 2027 could have only a limited impact on the greening of energy carriers in the short term (until 2030) and no impact on heat demand. Given the increased Flemish targets for greening energy carriers in the ESR industry, no additional impact is expected until 2030 following the introduction of the BRT ETS.

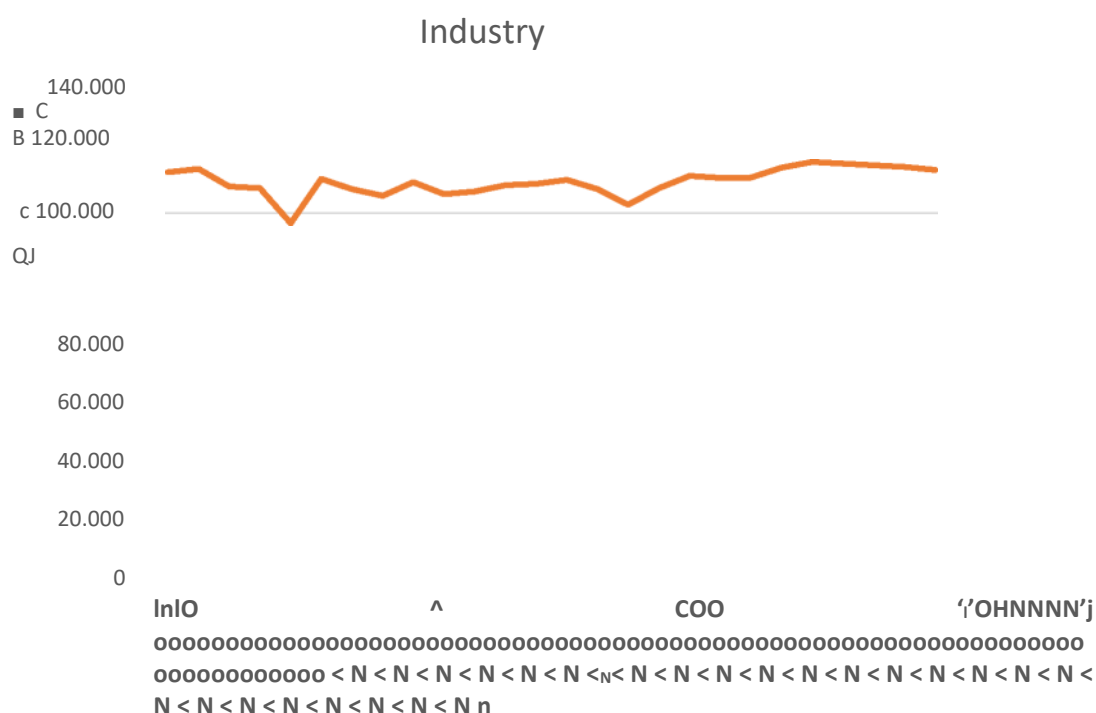


Figure 4-4. Evolution of final energy consumption in industry 2005-2030 (GWh)

	2005	2006	2007	2008	2009	2010	2011	2012	2013
GWh	113.260	114.323	108.654	108.139	96.761	111.092	107.806	105.665	110.086
	2014	2015	2016	2017	2018	2019	2020	2021	
GWh	106.142	107.058	109.050	109.482	110.809	107.814	102.787	108.074	
	2022	2023	2024	2025	2026	2027	2028	2029	2030
GWh	112.121	111.446	111.566	114.735	116.618	116.028	115.501	114.976	114.067

Table 0-6. Evolution of final energy consumption in industry 2005-2030 (GWh)

This results in final energy consumption of 2 030 GWh for 114,067. Final energy consumption is therefore lower than in the WAM scenario in VEKP 2019. This is mainly due to adjusted economic growth based on more recent estimates from the Federal Planning Bureau and the European Commission.

Transport projections

For the assumptions of the WAM scenarios, please refer to the transport section in the decarbonisation part – Transport and Mobility.

This results in final energy consumption of 2 030 GWh for 65,370406.

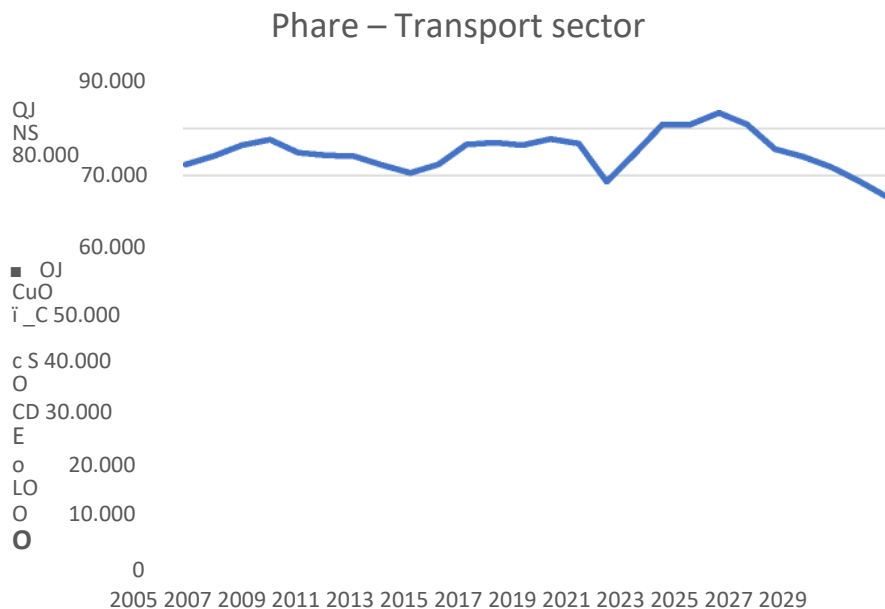


Figure 4-5. Evolution of final energy consumption in transport 2005-2030 (GWh)

	2005	2006	2007	2008	2009	2010	2011	2012	2013
GWh	72.265	74.062	76.381	77.538	74.757	74.221	73.987	72.140	70.459
	2014	2015	2016	2017	2018	2019	2020	2021	
GWh	72.258	76.481	76.938	76.341	77.711	76.737	68.574	74.562	
	2022	2023	2024	2025	2026	2027	2028	2029	2030
GWh	80.833	80.821	83.243	80.803	75.521	73.953	71.702	68.761	65.370

Table 0-7. Evolution of final energy consumption in transport 2005-2030 (GWh)

Projections for agriculture

For the assumptions of the WAM scenario, see the part on agriculture in the decarbonisation part of the agriculture sector.

This results in final energy consumption of 2 030 GWh for 3,889.

406Due to a methodological change in the Flemish energy balance from 2020 onwards, the final energy consumption for the period 2005-2019 is not comparable to the period 2020-2030.

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Agriculture

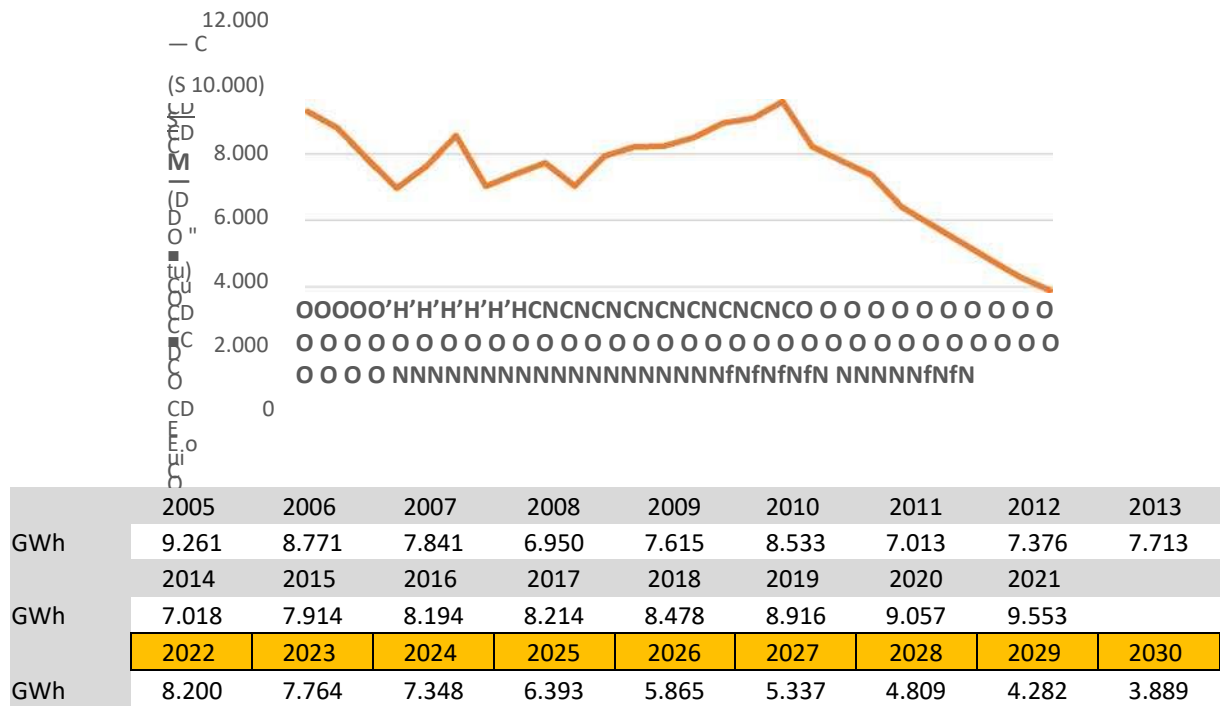


Table 0-8. Evolution of final energy consumption in agriculture 2005-2030 (GWh)

Region Walloon

By 2030, the WAM scenario⁴⁰⁷ in Wallonia was carried out taking into account the impact of grouping of measures described in Chapter 3 of this document. **The projections for 2040 are indicative and are not linked to commitments on policies and measures.**

These projections represent a possible pathway towards carbon neutrality by 2050.

1. Greenhouse gas emissions

The charts below show, since 1990, the evolution of GHG emissions from all sectors of activity and estimates the evolution with additional measures.

⁴⁰⁷With Additional Measures

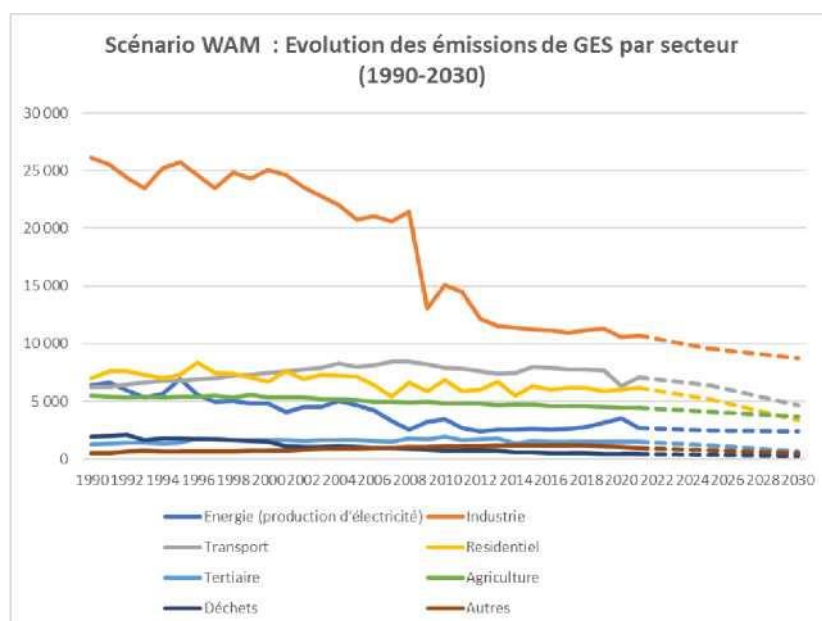


Figure 21: Sectoral trend in greenhouse gas emissions according to the scenario with additional measures (WAM) (1990-2030)

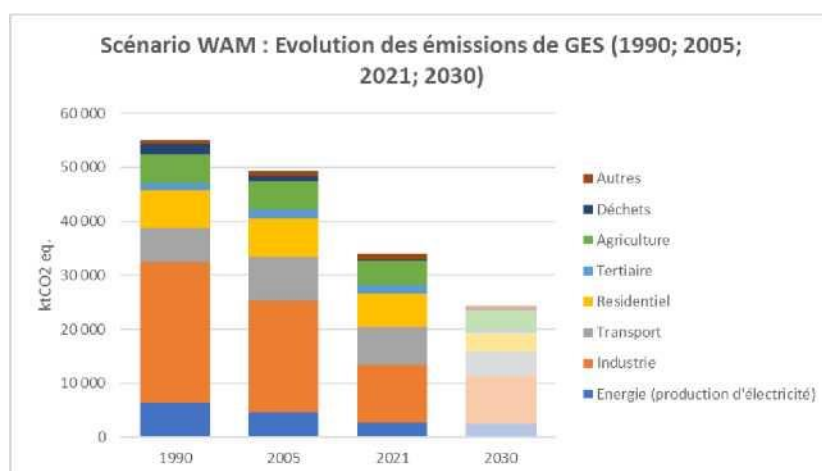


Figure 22: Overall trend in total greenhouse gas emissions (ETS + ESR) according to the scenario with additional measures (WAM) (1990; 2005; 2021; 2030)

For non-ETS emissions, projections estimate the reduction in greenhouse gas emissions in non-ETS sectors at -47 % compared to 2005. The baseline scenario foresaw a decrease of 19 % compared to 2005.

WAM scenario: Evolution of non-ETS GHG emissions (2005; 2021; 2030)

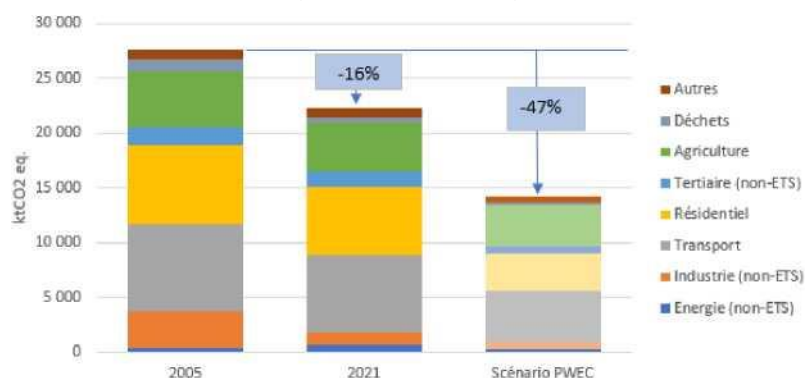


Figure 23: Evolution of non-ETS GHG emissions in the scenario with additional measures (WAM) (2005; 2021; 2030)

Compared to 2005, emissions in the non-ETS sectors fell by 80 % in the non-ETS industry (bearing in mind that the bulk of this decrease has already occurred between 2005 and 2021, i.e. – 66 %), 52 % in the residential sector, 61 % in the tertiary sector, and 42 % in the transport sector. The agriculture sector is reducing its emissions by 27 % compared to 2005.

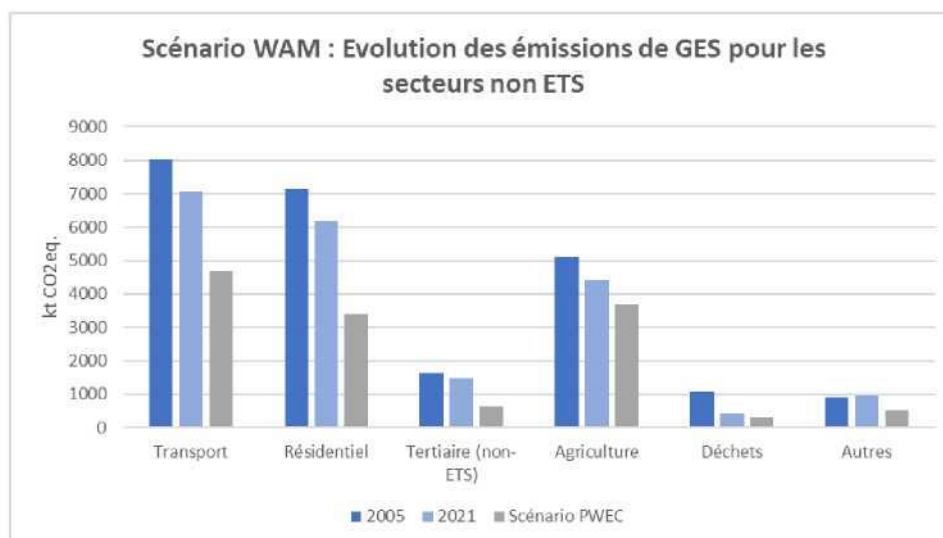


Figure 24: Sectoral trend in non-ETS GHG emissions (WAM)

2. Renewable energy

By incorporating the new measures for the development of renewable energy, and methodological and statistical changes since the adoption of PACE, the expected share of RES in gross final consumption at 2030 is estimated at 31 %, in the order of 33 TWh of renewable energy production⁴⁰⁸. By 2040, as an indication, the share of renewable energy sources would reach 60 %.

⁴⁰⁸Without counting biogas injected into the grid

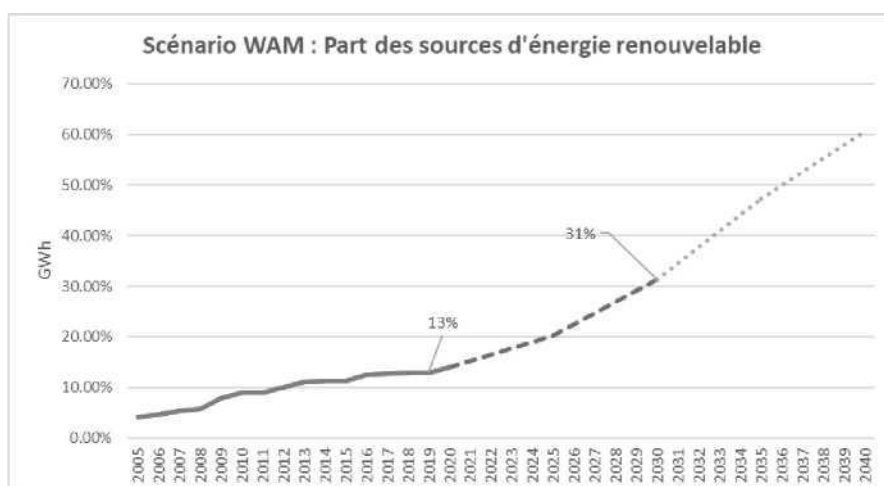


Figure 25: Evolution of the share of renewable energy in Wallonia in the scenario with additional measures ("WAM") (2005-2040), 2002-2020: energy balance; 2021-2040: results of the TIMES model

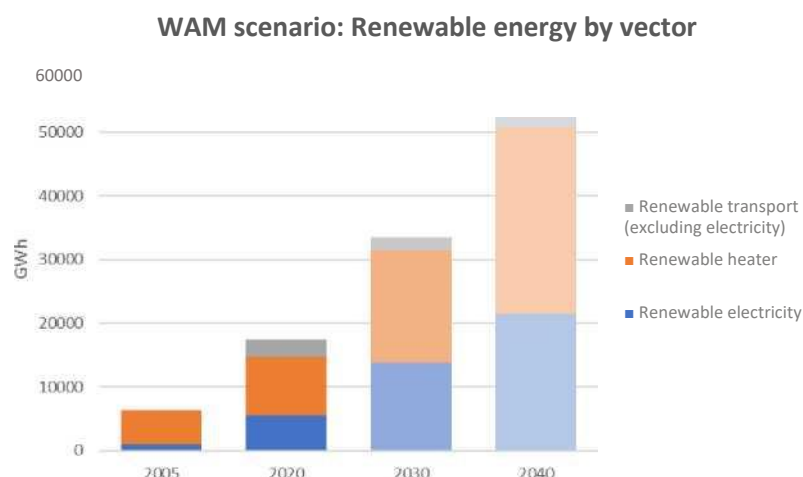


Figure 26: Evolution of vectors 2005-2030-Renewable-Wallonia – Scenario with additional measures ("WAM") – 2005 and 2020: energy balance; 2030 and 2040: results of the TIMES model

Renewable electricity

The sector with the largest growth (production multiplied by 2.5) by 2030 compared to the current situation is renewable electricity.

The share of electricity in gross final electricity consumption is 60 %. The most contributory sectors are onshore wind and photovoltaic, accounting for 45 % (6.200 GWh) and 37 % (5.100 GWh) of the total produced GWh. Hydro remains stable with 3 % of production. Co-generated biomass accounts for 14 % of production.

In order to achieve these objectives, the capacity installed in each sector must be increased. In particular, it will be necessary to install 3.410 MW between 2018 and 2030 for wind power and 5.553 MW for photovoltaic.

Renewable heat

The production of double renewable heat. The share of renewable heat in final heat consumption reached 34 % in 2030.

Biomass in all sectors accounted for 85 % of renewable heat production in 2030. There is also a breakthrough in heat pumps, accounting for 12 % of heat production in 2030 (compared to 4 % in 2020).

Renewable transport

The use of biofuel in transport is slightly decreasing as a result of reduced demand and modal shift, despite a biofuel incorporation rate of 10.45 %, up from 2020.

3. Energy efficiency

Final consumption in 2030 in the WAM scenario is estimated at 105 TWh, compared to 122 TWh in the WEM scenario. Compared to 2005, the decrease in final consumption is estimated at 30 % by 2030 (and -43 % in 2040).

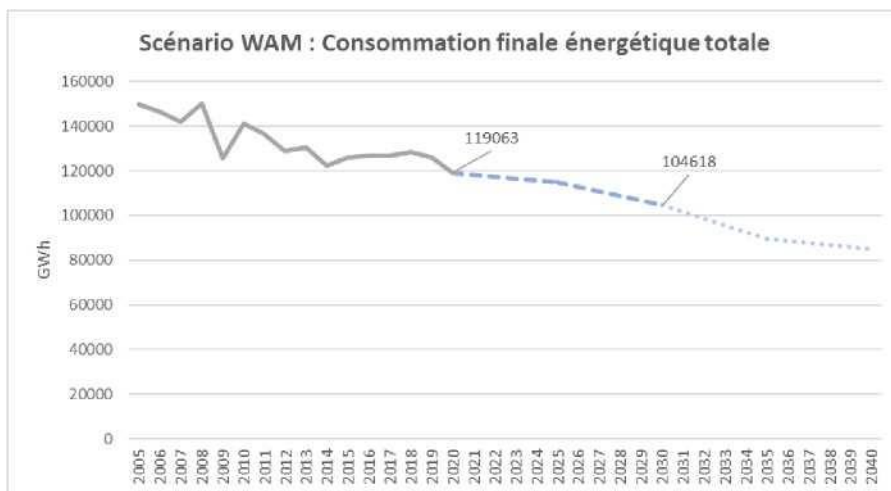


Figure 27: Trends in final consumption – Wallonia (2005-2040) – Scenario with additional measures (WAM); 2005-2020: energy balance; 2021-2040: results of the TIMES model

Between 2019 and 2030, the decrease in final consumption is estimated at 17 %, taking into account in particular demographic trends and economic growth.

The sectors with the largest decrease in consumption are construction and industry.

Residential

In the residential sector, final consumption decreased by 17 % between 2019 and 2030, mainly due to the measures of the renovation strategy. The decline continues to decline by 2040. There is a 24 % decrease in consumption in this sector compared to 2005, partly due to the measures already taken.

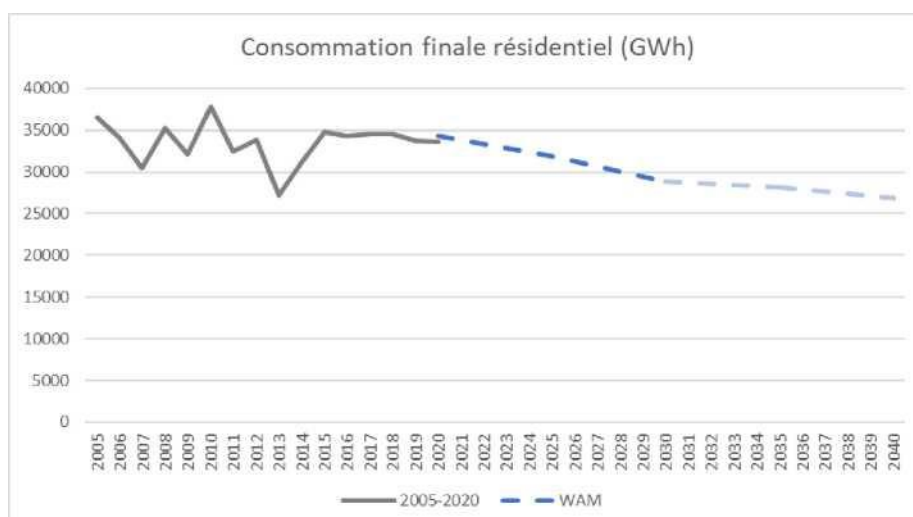


Figure 28: Residential final consumption (2005-2040) – WAM scenario – 2005-2020: energy balance; 2021-2040: results of the TIMES model

There is an increase in the share of renewable energy, while the share of petroleum products is decreasing, in particular thanks to the renovation or exit of fuel oil⁴⁰⁹.

Tertiary

In the tertiary sector, the decrease in consumption between 2019 and 2030 is estimated at 16 %. Efforts, in particular in the context of the implementation of the renovation strategy, are bearing fruit. By 2040, efforts are continuing to achieve carbon neutrality for the whole fleet, but more through system changes.

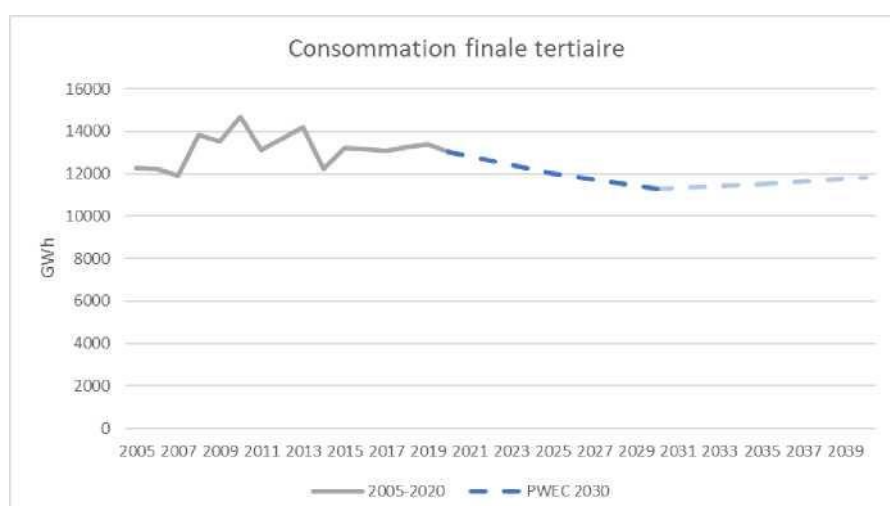


Figure 29: Final consumption in the service sector (2005-2040) – WAM scenario – 2005-2020: energy balance; 2021-2040: results of the TIMES model

⁴⁰⁹Subject to the accompanying measures provided for in the PACE

In 2030, the share of renewable energy, co-generated heat and electricity in the service sector increased, while gas and petroleum products are declining.

Transport

Final consumption in the transport sector, between 2019 and 2030, decreased by 24 %. The downward trend continues by 2040. Between 2005 and 2030, the overall decrease of 22 % was mainly due to the implementation of the FAST strategy (reduction of need and modal shift).

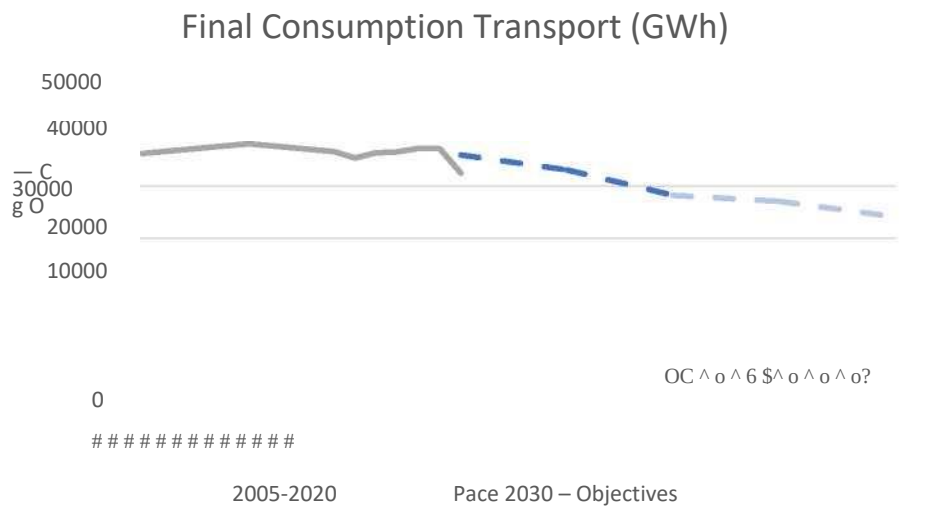


Figure 30: Final consumption of transport (2005-2040) – WAM scenario – 2005-2020: energy balance; 2021 – 2040: results of the TIMES model

The consumption of petroleum products is decreasing in favour of electricity (and gas to a lesser extent).⁴¹⁰ Biofuels occupy a relatively stable share (despite an increase in the incorporation rate, their consumption is influenced by lower consumption of petroleum products)

Industry

Between 2005 and 2030, the decrease in final consumption in the industry sector is estimated at 44 %, with a decrease of 17 % still to be achieved over the period 2020-2030 (the sharp decrease between 2005 and 2019 is mainly, but not limited to, the closure of several electro-intensive industries in Wallonia).

⁴¹⁰Subject to the social support measures for the exit of thermal vehicles provided for in the PACE

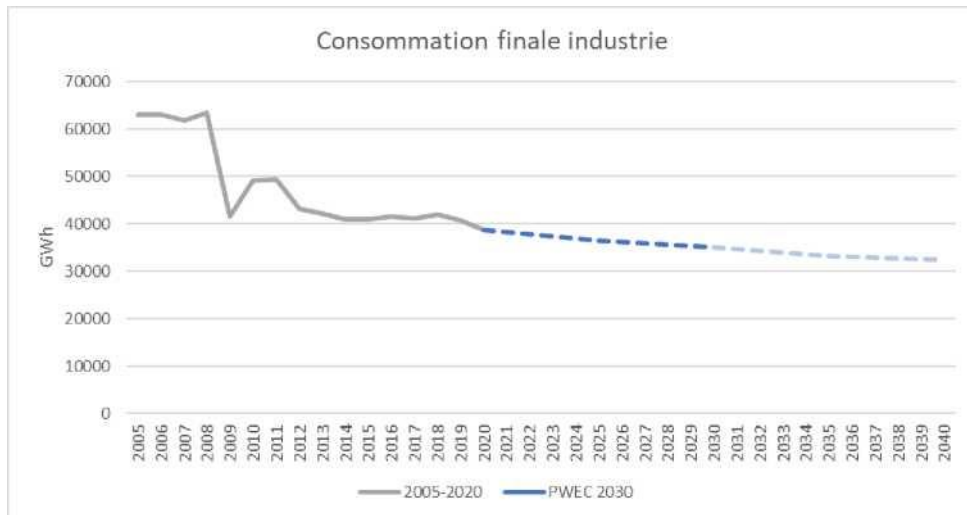


Figure 31: Final consumption of industry (2005-2040) – WAM scenario – 2005-2020: energy balance; 2021-2040: results of the TIMES model

Between 2019 and 2030, the share of renewable, co-generated and electricity consumption increased, while the share of fossil fuels is decreasing.

In addition to the downward influence of final consumption, primary consumption is also dependent on the estimated electricity production stock (nuclear output according to the schedule to date and assumption of electricity import/export varying over time).

- ii. *Assessment of policy interactions (between existing and planned policies and measures within a policy dimension, and between existing policies and measures and planned policies and measures of different dimensions) until at least the last year of the duration of the plan, in particular to have a clear understanding of the effects of energy efficiency/energy conservation policies on the size of the energy system and to avoid the risk of failure of investments in energy production.*
- iii. *Assessment of the interactions between existing and planned policies and measures and between those policies and measures and the Union's climate and energy policies.*

5.2. The macroeconomic and, to the extent possible, impacts on health, environment, employment, education, skills and society, including aspects of the just transition (in terms of costs and benefits and cost-effectiveness) of planned policies and measures, as described in Section 3, at least until the last year of the period covered by the plan, including a comparison with projections of existing policies and measures

Federal State

As part of the federal Circular Economy Action Plan, measure 24 foresees a study to assess the impact of the JU on climate change, biodiversity and economic prosperity. This study has not yet started. Results are expected for end 2024.

Flemish Region

The wider impact of the VEKP/NECP project on various socio-economic aspects (environmental, macroeconomic and social impacts) will be examined with a view to submitting the final plan in 2024, based on the objectives and sub-objectives of the draft update of the plan. .

In addition to investments and costs, the achievement of the plan's objectives will also generate many positive spillovers. The principal benefits are as follows:

- Significant improvement in air quality in Flanders and, as a direct consequence, better health for all Flamands. This will reduce healthcare costs and reduce premature deaths due to poor air quality.
- Reducing energy consumption and, as a consequence, the energy bill of households and businesses
- Thanks to a mitigation policy in the transport sector, contributing to the reduction of congestion and road accidents.
- Economic growth and net job creation.
- Considerable health benefits due to increased indoor comfort and adaptable diet. Flemish Region

Region Walloon

A. Several thousand jobs created for the Walloon economy

The plan's objectives are expected to have a positive impact on total employment levels in Wallonia, albeit with specific features:

1. The impact on employment and skills varies considerably from one sector to another;
2. A large part of the expected job creation is at the rapidly acquired skills levels⁴¹¹ and provides an opportunity for a just transition;
3. There is an important need for programmes for reskilling, transforming existing jobs and acquiring new skills.

These points of attention are addressed through various measures of the plan in Chapter 3 (training and retraining, circular economy, etc.), according to the guiding principle of just transition.

The implementation of the objectives of the PLAN could allow for the use of local companies, in particular for the renovation of buildings and the installation and maintenance of renewable infrastructure. Investments in these sectors generate added value for the Walloon economy and the creation of local jobs. Wallonia will also be able to reduce its dependence on energy imports from other nations, thus improving the trade balance.

The labour market analysis is summarised below and further detailed by sector in the remainder of this

⁴¹¹These skills can be acquired relatively quickly to meet demand

section:

4. **In order to meet the plan's ambitions**, it is necessary to have a sufficient number of skilled workers willing to renovate buildings, to increase the supply of public transport and low-carbon vehicles and to increase renewable energy capacity;
5. **Need for qualification**: in order to meet the standards of renovation, renewable installations, low-carbon vehicles and public transport, workers must have the necessary skills and knowledge;
6. **Ensuring the just transition**: it is necessary to accompany the re-skilling of jobs and the acquisition of new skills to ensure the creation of decent quality jobs.

The table below summarises the impact of the objectives of the plan by sector of activity. The analysis covers the direct and indirect employment of the few sectors mentioned below and does not cover job losses or gains in other sectors potentially affected.

Sector	Impact on employment and value added?	Rapid acquisition of skills?	Need for retraining?
Renovation	Positive	Medium to fast	High
Transport	Low	Medium to fast	High
Renewable energies	Positive	Long to fast	Low to high

The majority of jobs are created in the renovation sector. A significant conversion of around 20 %⁴¹² of current jobs from the construction sector to the renovation sector would ensure the plan's renovation objectives. These jobs and businesses could be mainly Walloon, as is already the case at present, provided that the acquisition of skills is planned.

In the transport sector, the main challenge is to retrain jobs and businesses towards low-carbon vehicles and collective transport modes (trains and buses). On this condition, the impact on employment and added value in Wallonia would be limited, given the existing companies and jobs for thermal vehicles.

The impact on Walloon added value would be positive for renewable energy, due to the investments needed to achieve the objectives of the Plan. However, it is important to stress that part of the investment will go abroad. Total jobs related to the renewable sector are expected to increase significantly as investments are higher than in a BAU scenario. Retraining needs will depend on the level of qualification targeted. It should be noted that certain posts will require specific professional skills linked to the development of technologies (wind turbines, solar panels, etc.) without the need for a university degree.

The impacts on value added and employment are limited to the sectors mentioned and cover only a small part of the Walloon economy. It is not possible to infer from this information on economic growth in Wallonia or on the competitiveness of enterprises in general. These topics would require specific socio-economic impact studies for Wallonia.

Building

The majority of jobs created by the objectives of the PLAN are in the sector of thermal renovation of buildings. The main challenges of building renovation are (i) the attractiveness of the sector, (ii) reskilling towards a just transition objective and (iii) skills development. These challenges are addressed

through the actions of this plan, particularly in terms of training and retraining, but also through ACER (Alliance Climat Emploi Rénovation) and other accompanying measures.

The main challenge of this sector is to increase the number of jobs in order to (i) meet the demand for renovation and (ii) stimulate demand for renovation by architects and entrepreneurs.

To give an indication of the importance of this challenge, these jobs (direct and indirect) correspond to around **20 % of the jobs** currently existing in the **construction** sector. Improving the attractiveness of occupations, which are currently in shortage, would be fostered by the creation of decent jobs and a just transition vision supported by the actions of the PLAN. The need to create decent jobs requires a fair wage in view of Wallonia's needs in this sector, different forms of job security, as well as safe working conditions. The just transition of the sector and the **reskilling** of jobs would be fostered by an affordable training strategy. The **financing of reconversions** is one of the main obstacles for the people concerned and requires public intervention.

In addition to the attractiveness and number of jobs, one important challenge for the sector is to ensure thermal renovation **skills**. On the one hand, the acquisition of skills on **quality standards** is necessary to achieve the objectives of the PLAN renovation. On the other hand, these skills must be used for a **sustainable renovation** of buildings, in line with circular economy principles and the use of low-carbon materials. If training is facilitated and accompanied, the acquisition of these skills can be relatively fast.

Transport

The plan's objectives would have a **low impact** on added value and transport-related jobs in Wallonia, provided that existing companies quickly adapt to new low-carbon vehicle technologies⁴¹³. The majority of these activities would be in the **operations and maintenance** sector. These estimates are **optimistic**, mainly because of the assumption of an equal maintenance cost⁴¹⁴ and an equal activity rate⁴¹⁵ between thermal and electric vehicles. This assumption needs to be reviewed in additional analyses as an electric vehicle requires less maintenance than a thermal vehicle. The revision of this assumption could lead to a (low) loss of jobs by 2030.

In the vehicle operations and maintenance sector, this **reskilling of skills** can be rapid as low-carbon vehicles are already part of the fleet. However, the sharp increase in electric and hybrid vehicles in the Plan targets makes the acquisition of skills a risk for this sector.

This low impact mainly concerns road freight and passenger transport and has not been achieved on rail, inland waterway transport or active mobility. The need for infrastructure and the operation and maintenance activities of these modes of transport would, a priori, create added value and local jobs; however, this assumption requires further analysis.

Renewable energies

The development of renewable energies in Wallonia with a view to achieving the objectives set by the Plan will have a direct and indirect impact on various sectors of activity. The direct effects will directly affect the sectors under consideration, while the indirect effects will affect the impacts recorded at the level of the other stakeholders involved (including suppliers).

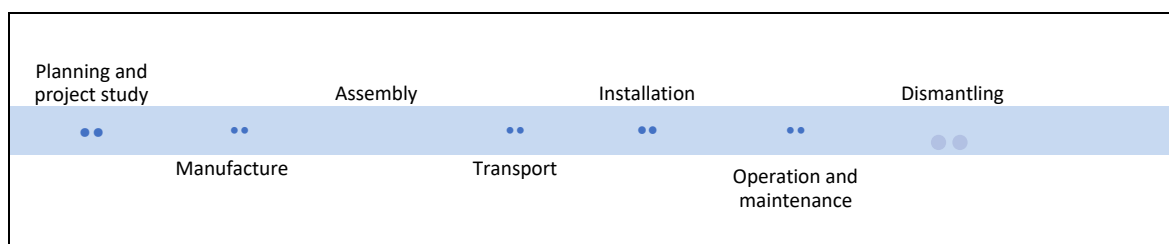
Overall, for the various renewable sectors which will develop in order to achieve the objectives of the

⁴¹³Analysis based on production multipliers of the Federal Planning Bureau and employment multipliers of the Belgian National Bank. These multipliers are assumed to be constant between 2020 and 2030 for a given NACE sector (Rev. 2).

⁴¹⁴This assumption comes from the use of TIMES cost factors by the Walloon Region's administration.

⁴¹⁵This assumption comes from the Climact analysis.

PLAN, a distinction is made between the activities set out in the diagram below:



Given the specific characteristics of the social and economic fabric in Wallonia, the impact of the development of renewable energy will be felt mainly on (i) planning, (ii) installation, (iii) operation and maintenance and (iv) decommissioning. The table below shows the extent to which the various links in the sectors will be affected in terms of job creation and added value. It also shows that the impact will be moderate in the production of wind turbines, solar panels and heat pumps.

Lifecycle	Planning and project study	Manufacture	Assembly	Transport	Installation	Operation and maintenance	Dismantling
Eolien	+++	+	++	++	+++	+++	+++
Photovoltaic	+++	/	/	++	+++	+++	+++
Heat pumps	+++	+	+	++	+++	+++	+++
Biomass cogeneration	+++	++	++	++	+++	+++	+++
Solid biomass	+++	++	++	++	+++	+++	+++

Impact on value creation and employment in Wallonia			
High impact	+++	75 to 100 %	
Medium impact	++	50 to 75 %	
Low impact	+	25 to 50 %	
Little/no impact	/	0 to 25 %	

In addition to these positive effects on employment and the creation of added value, it should be noted that job losses will certainly be recorded in the traditional thermal and electrical energy supply sectors. The development of renewable energies will certainly be a possible response to the transfer of jobs.

As regards the necessary qualifications, although the development of renewable energies will require skilled jobs, it should be noted that some of these posts will require specific professional skills linked to the development of technologies (wind turbines, solar panels, etc.) without the need for a university degree.

B. A gain in purchasing power for households

The objectives of the Plan would on average have a direct positive effect on households' purchasing power by lowering their **energy bills**. On average, the most vulnerable households will benefit from a gain in purchasing power. These trends do not automatically apply to each situation individually, as household energy consumption is complex and varied.

The increase in energy prices by 2030 would on average be offset by a decrease in energy consumption, and would allow for a decrease in the total energy bill of households. Significant savings will be achieved through **deep thermal renovations** in dwellings; on the other hand, by the reduction in **purchases of individual vehicles**, coupled with the energy efficiency of electric vehicles in comparison with thermal vehicles.

Energy prices are expected to be more **stable** than at present: the objectives of the PLAN will reduce dependence on fossil fuels and fluctuations in the markets for natural gas and petroleum products; on the other hand, energy community, energy sharing and peer-to-peer trading projects will help to free

up part of the energy markets. However, the objectives of the plan will not allow for complete energy independence and Wallonia will not be able to fully overcome the uncertainties associated with the markets.

With a view to a just transition, the **most vulnerable households** will reduce their **heating bills**, and will be able to benefit from the **opportunities for new jobs**. The social building stock is currently poorly renovated and social housing households will see a significant decrease in their energy bills due to deep energy renovations. The expected job creation is at the rapidly acquired skills levels could benefit precarious households and increase their purchasing power.

Building

For the user, improving the energy performance of buildings would have a direct positive impact on the **energy bill**⁴¹⁶. In the case of the most vulnerable households, who often rent housing in poor condition, renovation of these dwellings would allow them to reduce their burden and allocate the corresponding amount to other basic needs.

Support provided in parallel with measures to achieve the energy renovation objectives of housing, including **bonds**, will need to be well calibrated and available in time, in particular for the most vulnerable households. **The financial solutions of the Plan** would make it possible to ensure that renovation is accessible to all households, especially given their proportionality according to household incomes and their updating in a context of rising energy prices.

Thermal renovation of buildings would also lead to **healthcare-related** savings. Illnesses related to poor insulation of buildings, humidity and insufficient heating mainly affect the most disadvantaged sections of the population who rarely have the means to address the inadequacies of their housing. The plan's renovation objectives would allow substantial health improvements to be made to the entire population of the country, particularly for the least favoured, who are often more exposed.

Transport

The main saving item for households is related to **the purchase of individual vehicles**. The plan's objectives will lead to a reduction in the Walloon car fleet by between **20 % and 30 %**⁴¹⁷ **by 2030** compared to 2020, due in particular to the fall in demand for transport, the reduction in the modal share of cars and the increase in the load factor of cars. This reduction in the fleet would generate significant savings for Walloon households, including the purchase of vehicles, insurance, maintenance costs and the purchase of fuels.

The second item that influences household bills is linked to **the electrification of cars**. Currently, electric vehicles are **more expensive to purchase** than thermal vehicles. On the other hand, energy costs (electricity or fuel) are lower for electric vehicles than for thermal vehicles, due to their higher energy efficiency. Even without support mechanisms, the higher purchase price of electric vehicles would generally be offset by energy savings.

Renewable energies

The expansion of renewable energy ultimately reduces or even **emerges from dependence on** fossil fuels. And to **reduce dependence on energy imports** from other nations, thus improving the trade

⁴¹⁶ Wallonne Strategy of Renovation, 2020.

⁴¹⁷ Climate analysis based on the transport objectives of the Plan

balance, by increasing the Walloon energy production potential.

Moreover, the renewable potential is not the same for each municipality or for every citizen or company. In response, the schemes provided for in the PACE, including energy, energy sharing and peer-to-peer trading communities, the feasibility study for a universal supplier, the carbon agreements to come from 2024 for companies under the new voluntary industry agreements, etc., are promising future solutions. Through these systems, entities with low renewable potential can benefit from the production of other entities.

These devices would also allow access to cheaper installations, if large powers are controlled at one time. Waste heat and district heating will also play an important role in combating energy poverty. Indeed, heat recovery (estimated at 5.026 GWh of Walloon industrial potential⁴¹⁸) would make it possible to heat at cheaper prices than is currently the case.

Reference is also made to the renewable risk analysis below (section 5.3.ii) and the reporting of the budgetary and pricing costs of renewable support above (section 4.3.iii).

C. Impacts on environmental health and well-being

Environmental health impacts

Most climate objectives are consistent with improved air quality, which has a positive impact on health.

Although better insulation of buildings allows for reductions in energy consumption, its impact on health is also dependent on the quality of ventilation. Temperature variations are conducive to the development of respiratory and circulatory diseases. The insulation of buildings can reduce the number of hospitalisations for these types of illnesses. However, if not associated with sufficient air circulation, the increase in waterproofing may lead to the development of mould, particularly in cold houses and inadequately ventilated houses, or to the accumulation of indoor pollutants (e.g. released from materials), with negative health impacts. The EPB legislation provides for such requirements.

In the transport sector, the Environmental Impact Report of the Plan (RIE)⁴¹⁹ notes that promoting active mobility could have beneficial effects on physical fitness, thus overall improving the health of those using it.

From a road safety perspective, the modal shift and the expected decrease in mobility needs are expected to reduce the number of cars on the roads, which can have a positive impact on road safety. Encouraging cycling, accompanied by training and safe arrangements, helps to reduce the risk of accidents associated with this mode of transport. Wallonia therefore has high cyclist mortality per km at European level. The ongoing and planned measures for the massive development of infrastructure suitable for cyclists and pedestrians are therefore in the direction of improving their safety.

Impacts on well-being and quality of life

Climate measures should also have an impact on citizens' well-being and quality of life. Transport targets should reduce the number of cars on the roads, thus reducing congestion.

The renovation objectives should improve both thermal comfort (better thermal stability through more efficient regulation) and acoustic comfort (reduction of noise-related discomfort via more efficient frames). It should also promote access to healthy housing, greatly improving the quality of life and

⁴¹⁸<https://energie.wallonie.be/servlet/Repository/20210416-art14-rapport-final-gw.pdf?ID=62130&saveFile=true>

⁴¹⁹ Report on the environmental impacts of PLAN 2030, May 2019 (RIE-PLAN2030.pdf (AwAC.be))

comfort of the most vulnerable households, while allowing them to allocate the savings on their costs to other needs.

Some measures may be the source of noise pollution. This is the case for renovation works, the development of new road or rail infrastructure, and at airport level, as well as wind turbine installations. This aspect will therefore have to be considered in the associated projects.

D. Environmental impacts⁴²⁰

This section aims to describe the most significant environmental impacts of the measures in this plan. The environmental impacts envisaged are largely based on the *report on the environmental impact of the Air Climate Energy Plan for 2030 of the Wallonia* (hereinafter: “RIE”).

(<https://www.AwAC.be/images/Pierre/PACE/2030/RIE%20PACE2030.pdf>)

Impacts on air quality

The NECP, which implements the climate and energy policy, is drawn up in parallel and in synergy with the Air Plan, which will strengthen air quality policy under Directive 2016/2284 setting national targets for the reduction of certain atmospheric pollutants by 2020 and 2030 (the NEC Directive). These two plans form part of the Walloon PACE. This synergy is justified by the fact that energy and transport are two major sources of greenhouse gas emissions and air pollutants. These policies for better management of energy production and use and improved transport and mobility management contribute [80 % – 85 %] to reducing emissions of the main pollutants covered by the NEC Directive. The 2030 targets of the NECP could not be achieved without the implementation of the NECP.

An integrated vision of climate and energy and air policies also avoids or limits antagonistic or counterproductive measures.

The table below, taken from PACE, provides information on the emission projections of the pollutants SO₂, NO_x, VOC, PM_{2,5} and NH₃ based on the measures in this plan. Depending on certain assumptions, Wallonia’s commitments, based on the 2030 binding targets compared to 2005 under the NEC (National Emission Ceilings) Directive, can be met.

Pollutants	Reduction target Belgium 2030	Reduction target Wallonia 2030	Absolute ceilings Wallonia 2030 in kt	Projections Wallonia 2030 in kt	Estimated reduction by 2030 compared with 2005 (%)
SO ₂	66 %	65 %	15,4	10,76	75.8 %
No _x	59 %	60 %	49,4	41,72 *	66 %
VOC	35 %	31 %	32,1	29,88 *	37 %
PM _{2,5}	39 %	43 %	8,8	8,3	45.4 %
NH ₃	13 %	14 %	27,0	24,23	23 %

Table 17: Summary of reduction targets and projections for 2030 in absolute terms and percentages of reduction

* Under the NEC Directive, soil and manure management activities are not taken into account when calculating the target and its compliance.

*Sustainable Development*⁴²⁰ Goal 15 encompasses “the preservation, restoration and sustainable use of terrestrial and freshwater ecosystems”.

Biodiversity-related objectives are included in the *Convention on Biological Diversity*. A number of strategic goals have been formulated, including:

- Manage the underlying causes of biodiversity loss by integrating biodiversity across government and society;
- Improve the state of biological diversity by safeguarding ecosystems, species and genetic diversity;
- Reduce direct pressures on biodiversity and encourage sustainable use.

The Environmental Impact Report (RIE) states that the pollutant emissions generated by transport come mainly from exhaust gases (NO_x, fine particles, SO_x, CO, N₂O) and the abrasion of tyres, brakes and road surfaces (fine particles and heavy metals). Measures to reduce the circulation of polluting vehicles or the emissions of vehicles in circulation will have a positive impact on air quality.

This plan is accompanied by a target to significantly increase the share of biomass in future primary consumption in all sectors. Attention should be paid to the sharp increase in the use of biomass as a renewable energy source, as wood burning, mainly for domestic heating, is the main source (60 %), both in Wallonia and many countries, of fine particulate matter emissions that are particularly harmful to health, emissions of black carbon or carbon soot, which is a short-term climate forcer and thus contributes to global warming, and carcinogenic PAH (polycyclic aromatic hydrocarbons) emissions.

The impact of increasing the use of biomass to increase the share of renewable energy in energy production is therefore particularly negative in this respect.

Emissions from installations should be considered as a priority, especially in residential and PAHs. In general, a framework should be proposed to limit pollutant emissions. Several recommendations can be made: (i) encourage the use of biomass in industry and for collective installations rather than for small installations, (ii) favour the use of pellets (or alternately, platelet or log plants that are efficient in terms of air quality) and biogas, and (iii) provide advice on the use of boilers in order to limit pollutant emissions.

In addition, the use of biomass in the form of energy will be consistent with the work carried out by the Government (Biomasse-Energy Strategy), taking into account the following key issues: sustainability, conflicts of use, integration into the bioeconomy roadmap and respect for inter-vector coherence.

In terms of indoor air quality, the impact of building insulation will depend on the quality of ventilation.

On the other hand, reducing methane emissions (CH₄) is a particularly important synergy between the two plans, as methane is an important greenhouse gas and is also a precursor of ground-level ozone, an air pollutant that is harmful to health and ecosystems. The impact of methane reductions is therefore twofold and entirely positive.

Impacts on biodiversity

According to IPBES⁴²¹, we are facing a biodiversity crisis unprecedented in human history. Direct exploitation, climate change, pollution and introduction of invasive alien species are all mentioned factors. However, the change in the exploitation of the area is undoubtedly the most significant factor affecting land and freshwater environments.

Any construction (be it buildings, infrastructure or renewable energy production parks) or development (e.g.: river works) can lead to loss or alteration of habitats, which make it crucial to control. The works may also disrupt wildlife during periods of nesting or rearing of young people, which may require adaptation of the schedule. In addition to these risks, there is also the risk of dispersal in the construction of invasive alien species, the management of which represents a significant cost⁴²².

⁴²¹IPBES (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, S. Díaz *et al.*, IPBES secretariat, Bonn, Germany, pp. 5-13

⁴²² France and the Grand Duchy of Luxembourg have developed resources for this purpose: <http://www.biodiversiteetbati.fr/Files/Other/Biodiversite-et-chantier.pdf>
<https://www.youtube.com/watch?v=2kE0y6GnBT8>

Public lighting is a source of light pollution, with implications for wildlife, comfort and night sky observation. The public service obligation relating to communal lighting should be complemented by recommendations in terms of timing and lighting modulation or luminous flux orientation⁴²³. A project to strengthen lighting on RAVeL is also envisaged. As these paths are strongly associated with green spaces, the project will have to be studied in view of the impact of this light pollution on wildlife.

Particular attention should also be paid to continuing efforts to preserve biodiversity and wildlife already documented and applied in the context of the deployment of renewable infrastructure and building renovation, in particular: continuing action to minimise the impact of onshore wind turbines on wildlife; taking into account the impact of photovoltaic panels on certain insects; the continuation of specific wildlife nesting in the context of building renovation.

Issue of mineral resource management

Finally, the development of renewable energies will lead to a growing demand for minerals, the exploitation of which is characterised by high environmental impacts. It will therefore be necessary, on the one hand, to promote recycling routes and, on the other hand, to ensure the use of extracted and purified resources in the least harmful way that guarantees fair exploitation and respect human rights.

https://environnement.public.lu/fr/publications/conserv_nature/plantes_exotiques_envahissantes/plantes_exotiques_envahissantes.html

⁴²³See for example: Biodiv' 2050 booklets: Understand No. 6 (2015) "Lighting of the 21st century and biodiversity"

5.3. Overview of investment needs

1. Existing investment flows and planned investment assumptions in relation to the policies and measures envisaged

National Strategic Investment Pact⁴²⁴

Under the National Strategic Investment Pact (PNIS), the Strategic Committee (group of independent experts) submitted a report to the various governments of the country on 11 September 2018. The objective of this report is explicitly to assess the need for strategic investments in Belgium by 2030. These needs cover six areas,⁴²⁵ including energy and mobility.

Table 6: Strategic investment needs in Belgium up to 2030, by area

Field	Recommendation	Funding (EUR billion)	
		Public	Private
Complete renovation of government buildings	Massive investments in renovating public buildings to make them smarter and more energy efficient	8,5	8,5
Electricity mix	- Continue to ensure security of supply at competitive prices - Further development of renewable energy, including for households - Seek to further reduce the cost of renewable energy	0	19
Strengthening networks	Investing in transmission and distribution networks to enable a balanced and more flexible transition	0	17

⁴²⁴https://www.npsi-pnis.be/sites/default/files/final_report_energy.pdf https://www.npsi-pnis.be/sites/default/files/final_report_energy.pdf

The⁴²⁵ 6 NPSI domains are: “Digital”, “Cybersecurity”, “Education”, “Health”, “Energy”, “Mobility”.

[1] [1] the 4 cross-cutting areas of the NSIP are: “better regulation for strategic investment projects”, “capital mobilisation”, “public-private partnerships”, “a fiscal strategy and European rules to promote public investment”.

[2] [2] ‘yards’ are technical working groups set up in the framework of the implementation of the NPAI and designed to prepare the work of the Inter-Ministerial Conference on Strategic Investments, set up by a decision of the Advisory Committee of 7 November 2018. The two sites referred to here are: “Site I: inter-federal governance and synergy with European bodies “and” Site III: Raising capital (PPP and EPC)’.

	Supporting the development of smart grids		
Storage development	- Deployment of storage capacities (vehicles, homes and businesses) - Attracting a battery manufacturer to our country - Development of pumping and turbinning	0	5
Deployment of alternative fuels	- Ensure a sufficient number of charging stations for CNG and electricity - Support to R & D for hydrogen and green gas	0	0,3
Research on nuclear decommissioning and waste management	- Support projects to enhance the knowledge of Belgian companies on decommissioning through the <i>Advanced Belgian Cluster on Decommissioning</i>(ABCD). - Research on efficient treatment of nuclear waste	0,7	1
TOTAL ~		~ 9	~ 51
		~ 60	

Impact

- The renovation of the building stock will rapidly lead to a **sharp reduction in the Government energy consumption**, which will lead to significant **savings** and help Belgium meet its **energy targets for 2030**. This will also have a **significant impact on SMEs** and other private sector actors.
- Investments in networks and generation capacity will help ensure security of supply.
- A healthier living environment** for Belgian citizens by promoting the use of CNG (and other greener fuels).

As regards mobility, the report of the Thematic Working Group resulted in the following assessment:

Field	Recommendation	Funding (EUR billion)	
		Public	Private

Building and maintaining integrated transport networks and services	• Servicing and maintenance of existing infrastructure (e.g. bridges, tunnels) • Improving access to cities, through suburban rail networks, integrated platforms and cycle paths, among others. • Improving rail access to ports and industrial parks and modernising locks	17,2 20,5	2,8-3,5
Facilitating smart mobility solutions	• Creation of a central real-time data lake at national level • Creation of a single and grouped mobility application to facilitate door-to-door mobility • Deployment of systems transport intelligent (ITS) to reduce congestion	1,5-2	0,1
Transport demand management	• Promoting spatial planning and redevelopment from parks activities economic • Establishment of satellite offices and co-working areas • Smart pricing of mobility services • Mobility promotion campaigns	0	2
Create a support framework	• Establishment of the National Mobility Observatory • Development of a multi-annual multimodal investment programme (including a clear vision of investment and specific governance structures at the appropriate level (metropolitan, regional or national)).	0	< 0,1
TOTAL ~		~ 19	~ 6
		~ 22-27	
Impact • Smarter mobility and reduced demand for mobility will reduce economic losses due to travel in traffic jams. • Large infrastructure projects create employment, which has a multiply effect important for the economy.			
	Strengthening digital actors and other cutting-edge technologies in the field of smart		

- **Provide an overall assessment of the sources of investment, including appropriate financing at national, regional and Union level.**

There was also a more in-depth brainstorming on the sources of financing for strategic investments under the National Strategic Investment Pact (PNIS). In fact, the aspect of capital mobilisation is one of the 4 cross-cutting factors identified in the Strategic Committee's report⁴²⁶ as elements that need to be worked on to promote investment. The report of the working group which examined the factor "Mobilisation of capital" sets out certain financial instruments that can be used to carry out the investments identified in the Strategic Committee's report.

However, this mapping of funding sources at national, regional and EU level is still ongoing. More specifically, this technical work is carried out within two sites^{427 428} established by a decision of the Advisory Committee of 27 March 2019^D428.

Use of EU funds

Belgian actors (public and private) can rely on the following European sources of funding.

Table 7: Overview of the deployment of EU funds by dimension

The schemes	Decarboni shedding	Energy efficiency tick	Energy security tick	MIE	Research, innovation and titi veness
European Regional Development Fund (ERDF)	X	X			X
Funding for a just transition	X				
European Social Fund Plus (ESF +)	X				
European Maritime, Fisheries and Aquaculture Fund	X				
Common agricultural policy	X				X

The NPSI's⁴²⁶ 4 cross-cutting areas are: "Better regulation of strategic investment projects", "Capital mobilisation", "Public-private partnerships", "A tax strategy and European rules that promote public investment".

⁴²⁷'Construction sites' are technical working groups set up as part of the implementation of the IPSN. They are intended to prepare the work of the Inter-ministerial Conference on Strategic Investment set up by a decision of the Advisory Committee of 7 November 2018. The two sites referred to here are: "Site I: Inter-federal governance and synergy with European bodies "and" Site III: Raising capital (PPP and EPC)".

⁴²⁸ See also https://www.npsi-pnis.be/sites/default/files/final_report_energy.pdf

Innovation Fund	X	X			X
Horizon Europe	X	X			X
Life – Clean Energy Transition	X	X			X
Life Climate change mitigation and adaptation	X				
Connecting Europe facility	X		X	X	
Digital Europe Programme	X				X
InvestEU	X	X	X	X	X
Recovery and Resilience Plan (RRF)	X	X			X
REPowerEU	X	X	X	?	X

Most of the funds described below are relevant for several dimensions, and all for the low carbon dimension.

Research, innovation and competitiveness are also described in detail in section 3.5 (iii).

Cohesion policy:

Under the Multiannual Financial Framework 2021-2027, Belgium receives EUR 2689 million (current prices) of cohesion policy funding to accelerate its green and digital transition and support the development of a competitive, innovative and inclusive economy.

Breaking down of Cohesion Policy Allowances per Member State *(in EUR million, current prices)*

	ESFt	ERDF	CF.	of which transferred to the CEF	ETC	Total Allocation
 Belgium	1 168	1 152	—	—	369	2 689

Of these EUR 2,7 billion, Belgium receives EUR 1,3 billion more specifically to accelerate the green transition. Of the EUR 1,3 billion, EUR 407 million is invested for REPowerEU objectives in 2021-2027. This comes on top of EUR 119 million invested for the green transition under the 2014 budget⁴²⁹. On an aggregated basis over the two programming periods, this is the case for the Redeploying targets:

⁴²⁹ https://commission.europa.eu/system/files/2022-02/cohesion_policy.pdf ○ 100 million (2014-2020 and 349 million (2021-2027) to improve energy efficiency.

- 19 million (2014-2020) and 58 million (2021-2027) for low-carbon energy and low-carbon

Cohesion policy includes:

- ESF +: European Social Fund +
- ERDF: European Regional Development Fund
- CF: Cohesion Fund
- ETC.: European territorial cooperation goal (Interreg) financed by the ERDF
- JTF: Funding for a just transition
- EMFAF: European Maritime, Fisheries and Aquaculture Fund

The strategy and modalities for these investments are set out in the Partnership Agreement⁴³⁰ between Belgium and the Commission.

European Regional Development Fund

Under the **European Regional Development Fund** (ERDF), almost EUR 500 million will be invested in research, innovation and digitalisation. This amount includes support for the transfer of advanced technologies to increase the competitiveness of small and medium-sized enterprises (SMEs), as well as investments in the digitalisation of SMEs and public administrations.

In addition, almost EUR 400 million from the ERDF will be invested in energy efficiency and renewable energy and in reducing greenhouse gas emissions. This includes investments in sustainable urban development, in particular in the area of sustainable mobility and energy renovation of public buildings.

ERDF/ERDF operational programmes are managed at regional level in Belgium.

- Flanders: (almost 600 million, including 276 million from the EU): Energy efficiency, renewable energy and sustainable urban mobility are high on the agenda. ⁴³¹
- Wallonia 2027 (EUR 1,5 billion, of which almost EUR 0,6 billion in EU funds): priorities include the transition to intermodal and multimodal mobility, energy efficiency of public buildings, the circular economy and sustainable use of resources, as well as the transition of workers to the energy, green jobs, construction and green transition sectors. ⁴³²
- Draft programme for the Brussels-Capital Region (EUR 303 million, of which EUR 121 million from the EU): 45 % of the funds will be invested in the environmental priority, including energy efficiency measures, circular economy and green infrastructure in urban areas.⁴³³

European⁴²⁹ Commission, [EU 2023 Country Report – Belgium](#) p. 27

Partnership⁴³⁰ Agreement with the Belgium — 2021-2027, European Commission, 16/12/2022
https://commission.europa.eu/publications/partnership-agreement-belgium-2021-2027_en

⁴³¹ERDF 2021-2027 Flanders, European Commission, 2023, https://ec.europa.eu/regional_policy/in-your-country/programmes/2021-2027/be/2021be16frpr002_en

⁴³² Wallonia 2021-2027, European Commission, 2023 https://ec.europa.eu/regional_policy/in-your-country/programmes/2021-2027/be/2021be16ffpr001_en

⁴³³ New Cohesion Policy 2021-2027, Brussels-Capital Region, 2023, <https://erdf.brussels/programmation-2021-2027-2/to-understand-everything-about-the-new-2021-2027-programming/>
<https://erdf.brussels/programmation-2021-2027-2/to-understand->

Interreg

Interreg is one of the instruments through which the European Union finances cross-border, transnational and EU-wide cooperation projects. Financial resources to support projects come from the European Regional Development Fund. Interreg aims to address common challenges across borders in areas such as research and innovation, climate change mitigation, climate change adaptation, sustainable transport, sustainable energy, biodiversity, health, labour market, lifelong learning, etc.

The Belgian regions are involved in the following programmes:

- For cross-border cooperation (only for border regions/provinces)

Interreg VI-A Grande Région (France-Belgium-Germany-Luxembourg) – EUR 303 million, of which EUR 181 million from the ERDF

‘ Interreg VI-A Flandres-Netherlands’ (EUR 205 million from ERDF)

Payment of EUR 125 million from ERDF to Interreg VI-A – Rhine (NL-BE-DE)

Interreg VI-A France-Wallonia-Flanders (EUR 286 million from ERDF)

- For interregional cooperation between actors from different European regions

feedingstuffs from Flanders to other North Sea countries: Interreg VI-B North Sea (EUR 176,5 million from ERDF)⁴³⁴

among the 3 regions with northern France, western Germany, the Netherlands, Luxembourg and Ireland: Interreg VI-B North-West Europe (EUR 517 million of which EUR 310 million from the ERDF), which is particularly relevant for innovative investment projects in the areas of climate resilience, ecological connectivity, pollution and emission reduction, transition to green solutions such as renewable energy and circular economy.^{435 436 437}

- For pilot projects

The European Urban Initiative for Urban Pilot Projects – its predecessor Urban Innovative Actions – funded 9 projects in Belgium in 2014-2020.⁴³⁷⁴³⁸

, The Interregional Innovation Investment Facility (I3) for projects supporting the smart specialisation of regions. — EUR 570 million are available for the period 2021-2027 and up to EUR 10 million per project^{438.439}

- For the exchange of experience with all other European regions in order to increase the effectiveness of public investment

‘ Interreg Europe’ (EUR 379 million from ERDF at European level) for public actors

— URBACT (EUR 79,7 million from ERDF at European level) for cities and

everything-about-the-new-2021-2027-programming/OP_Brussels-Capital_Region, 2023 https://ec.europa.eu/regional_policy/in-your-country/programmes/2014-2020/be/2014be16rfop001_en

⁴³⁴Programmes Interreg in Flanders, VLAIO, 2023, <https://www.vlaio.be/nl/vlaio-netwerk/efro-interreg/ontdek-interreg/interreg-programmas-vlaanderen>

⁴³⁵Interreg VI-B) Northwest Europe, European Commission, 2023, https://ec.europa.eu/regional_policy/in-your-country/programmes/2021-2027/be/2021tc16rftn005_en

European Urban⁴³⁶Initiative, 2023, <https://www.urban-initiative.eu/>

⁴³⁷Projects, Urban Innovative Actions, accessed 14/03/2023 <https://uia-initiative.eu/en/uia-cities>

⁴³⁸Interregional Innovation Investment Facility, EISMEA, 2023 https://eisma.ec.europa.eu/programmes/interregional-innovation-investments-i3-instrument_en#interregional-innovation-investments-i3-instrument

⁴³⁹Factsheet I3 Instrument, European Commission, 23/03/2023 https://eisma.ec.europa.eu/document/download/41b43833-3207-481b-970c-abc5d4d3dc00_en?filename=I3-FactSheet_0203_final.pdf

municipalities

- **Interract** for the exchange of knowledge
- ESPON finances studies on territorial cohesion

Just Transition Fund: (JTF)

The Commission approved the Territorial Just Transition Plan (TJTP) for Belgium and allocated a total of EUR 182,6 million from the Just Transition Fund (JTF). This amount will be invested in the development of a low-carbon, circular and energy-efficient economy, ensuring overall economic diversification and a fair climate transition in our country.⁴⁴⁰ The Walloon Region adds EUR 274 million, bringing it to a total of almost EUR 456,5 million.⁴⁴¹

Tournai, Mons and Charleroi will benefit from JTF support to move towards clean energy production, including by replacing fossil fuels with renewable hydrogen and biomethane. In addition, the decarbonisation of regional industry will be supported by grants to co-finance investments for their economic conversion and the purchase of high quality technological materials. The money will also contribute to the remediation of old industrial sites, which will then be adapted to new economic sites while avoiding new land consumption. In addition, the JTF will support research and innovation activities.⁴⁴²

The launch of support schemes has not yet taken place.⁴⁴³

European Social Fund +:

The European Social Fund Plus (ESF +) invested in 2021-2027 over EUR 1,2 billion in social cohesion and employment in Belgium. 16 % of the funding contributes to green skills and jobs does not support self-employed people in the green economy.⁴⁴⁴

Almost EUR 500 million will be spent on upskilling and reskilling measures for the unemployed and workers to help them acquire new skills to find quality jobs. The funding also supports reforms in employment, education and training policies, promotes social inclusion and addresses skills mismatches and labour market shortages.

In addition, around EUR 300 million is earmarked for employment support, mainly for young people. For example, they are helped to successfully apply for a job, for example through career counselling and traineeships.

Around EUR 400 million will be allocated to the active social inclusion of vulnerable groups, such as people with a migrant background, low-skilled workers, the long-term unemployed and those who are not currently working or looking for a job. The fund will also tackle child poverty.

Finally, an additional EUR 50 million is available for food aid and material assistance to the most deprived, mainly through food banks.

As regards the European Social Fund +, there are five operational programmes: ESF Flanders, ESF

⁴⁴⁰ [inforegion – EU Cohesion Policy: EUR 183 million for a just climate transition in Belgium \(europa.eu\)](https://ec.europa.eu/region_informations/en/inforegion-eu-cohesion-policy-eur-183-million-for-a-just-climate-transition-in-belgium)

⁴⁴¹ Wallonia 2021-2027, European Commission, 2023 https://ec.europa.eu/regional_policy/in-your-country/programmes/2021-2027/be/2021be16ffpr001_en

⁴⁴² EU cohesion policy: Over EUR 183 million for a just climate transition in Belgium, European Commission, 21/12/2022 https://ec.europa.eu/regional_policy/whats-new/newsroom/21-12-2022-eu-cohesion-policy-almost-eur183-million-for-a-just-climate-transitional-in-belgium_en

⁴⁴³ <https://europe.wallonie.be/actualites/2021-2027-le-programme-feder-et-ftj-est-approuve>

⁴⁴⁴ Commission, EU Country Report 2023 – Belgium, p. 40

Wallonia-Brussels, ESF Brussels-Capital Region, ESF German-speaking Community and ESF Federal ESF:

- The ESF + Wallonia-Brussels (Wales Region and French Community) Operational Programme 2021-2027 foresees EUR 152 million out of EUR 1037 million (almost 15 %) to contribute to green skills and jobs and the green economy. It provides EUR 149 million for training for these skills (accessible to the whole French community, including Brussels) and just over EUR 3 million for measures to help people find jobs in green jobs (for Wallonia only).⁴⁴⁵
- The ESF + Flanders Operational Programme 2021-2027 foresees EUR 44 million to develop these green skills and jobs, including almost EUR 25 million for training actions (accessible to the entire Dutch-speaking community, including Brussels).⁴⁴⁶
- The ESF + Operational Programme of the German-speaking Community foresees almost EUR 1,7 million (out of a total of EUR 20 million) to contribute to green skills and jobs and the green economy.⁴⁴⁷
- The draft Operational Programme + for the Brussels-Capital Region foresees a contribution of EUR 1,7 million for green jobs, but does not specify the modalities.⁴⁴⁸
- A federal ESF + programme is being prepared.

European Maritime, Fisheries and Aquaculture Fund:

Under the European Maritime, Fisheries and Aquaculture Fund (EMFAF), the Belgian fisheries sector will benefit from EUR 40,3 million (2021-2027) support to invest in more sustainable fisheries.⁴⁴⁹

These investments will focus on compliance with the landing obligation and the prevention of discards at sea, as well as improving the safety, health, hygiene and working conditions of fishing vessels.

Priority will also be given to innovation (e.g. electronic identification of non-commercial and endangered species, new tools for digital data collection through image analysis for species recognition and identification) and sustainable and forward-looking management of fish stocks, including by supporting fisheries control and scientific data collection.

The Fund will also support energy efficiency and decarbonisation in the fisheries, aquaculture and fish processing sectors. As regards aquaculture, diversification of farmed aquaculture species will be encouraged, which should also have an impact on the design of fish processing.

Finally, as regards the sustainable blue economy, Belgium will focus on the development of its coastal areas through a local action group.

Common Agricultural Policy (CAP)

Belgium is the only European country to submit two CAP plans, with a Flemish plan and a Walloon plan. The two plans represent a total budget of over EUR 2,8 billion, with EUR 1,3 billion for Flanders and EUR 1,5 billion for Wallonia. Out of the regions' total budget, more than EUR 900 million will be spent on environmental objectives, climate objectives and eco-schemes, and EUR 100 million for young farmers.⁴⁵⁰

⁴⁴⁵Programme operational ESF + Wallonia Brussels, 16/12/2022, https://fse.be/fileadmin/sites/fse/uploads/documents/Mon_projet_FSE_2021-2027/Programme_FSE_21-27_wallonie_bruxelles.pdf

⁴⁴⁶Programme operational ESF + Flanders, 16/12/2022, <https://www.europawse.be/sites/default/files/public/Documenten/ESF%2B%20Programma%202021%202027.pdf>

⁴⁴⁷Programme ESF More 2021-2027 Community German-speaking from Belgium, 16/12/2022, <https://ostbelgieneuropa.be/DownloadCount.aspx?raid=204460&docid=90458&rn=ba25a330-0a85-403b-bf31-682b727afd0b>

⁴⁴⁸<https://www.actiris.brussels/media/522od0ee/sfc2021-prg-2021be05sfr002-1-0-fr-h-B7DFBFB.pdf>

⁴⁴⁹European Commission, EU Country Report 2023 – Belgium, p. 28

⁴⁵⁰<https://agriculture.ec.europa.eu/news/commission-approves-cap-strategic-plans-belgium-2022-12->

Further information can be found at:

- <https://www.vlaWAMruraalnetwerk.be/glb-subsidiewijzer>
- <https://agriculture.wallonie.be/plan-strategique-pac-2023-2027>

Innovation fund:

Funded by revenues from the EU Emissions Trading System, the Innovation Fund aims to help companies that invest in innovative low-carbon technologies with significant potential to reduce greenhouse gas emissions.

Five Belgian projects were selected on July 2023. The first two projects have already been launched.

- Kairos @ C will contribute to the decarbonisation of European industries with an expected total reduction of greenhouse gas emissions of 14.0 Mt CO₂ equivalent in the first 10 years of operation. The total grant for the project is EUR 356,9 million out of a total relevant cost of EUR 594,8 million as defined in Article 5 of the Innovation Fund Delegated Regulation 2019/856451
- CO₂ncrEAT offers an integrated low carbon footprint solution for cement free construction products using CO₂ from the exhaust gases from lime plants and waste from stainless steel production. 452
- Go4zero will demonstrate a concept of recirculation and combustion gas concentration combined with a full CCS solution for a large-scale negative carbon clinker (component of cement) plant.
- COLUMBUS will provide a scalable and replicable solution to decarbonise industry by combining “fatal” CO₂ captured from lime production and green hydrogen, to produce carbon-neutral synthetic e-methane
- GIGA-SCALE aims to develop advanced alkaline water electrolyzers on a larger scale.

Horizon Europe:

The Framework Programme for Research and Innovation is particularly relevant to support public and private actors active in climate and energy research and innovation. The following parts (“cluster”) and “destination” of the programme are particularly relevant for this plan:

- Cluster 5 and especially its “destinations” 1 (Climat), 2 (cross-sectoral solutions for climate transition), 3 and 4 (energy);
- To a lesser extent cluster 6 for climate change adaptation aspects and “destination” 5 (land, ocean and water for climate action);

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451https://ec.europa.eu/assets/cinea/project_fiches/innovation_fund/101051344.pdf <https://kairosatc.eu/>
452https://ec.europa.eu/assets/cinea/project_fiches/innovation_fund/101103194.pdf

- Missions Adaptation to Climate Change 453 and Climate-Neutral and Smart Cities; 454
- Partnerships linked to cluster 5455 involving Belgian regions in particular
 - Driving Urban Transition (DUT)

Dealing with Clean Energy Transition Partnership

- Partnerships linked to cluster 6456 involving Belgian regions in particular
 - SBEP** A climate neutral, sustainable and productive blue economy Partnership
 - Water4All
- The European Innovation Council is addressed to researchers and SMEs who wish to market the results of their research. Thematic challenges make it possible to support more specifically relevant energy and climate projects in EIC Pathfinder, EIC Transition and EIC Accelerator.

For the 2021-2027 programming on 3 March 2023, according to Horizon Dashboard 457 458

- 113 projects involving 119 single Belgian participants and budgets of almost EUR 93 million have already benefited from EUR 78 million for the 2021 Climate and Energy Destinations in Cluster 5.

AMONGST OTHERS⁴² projects involving 52 Belgian participants and budgets for almost EUR 43 million have benefited almost EUR 36 million for “destinations” 1 and 2 climate-related.

AMONGST OTHERS⁷¹ projects involving 77 Belgian participants and budgets for almost EUR 50 million have benefited almost EUR 43 million for energy-related “destinations” 3 and 4.

- 187 projects involving 180 single Belgian participants and budgets of EUR 160 million received almost EUR 136 million for cluster 6 calls. More specifically, 9 projects involving 22 single Belgian participants and budgets of more than EUR 14 million received EUR 8,8 million for the 2021 climate-related ‘destination’ calls 5.
- 8 projects involving 21 single Belgian participants and budgets of EUR 12,5 million received almost EUR 12 million for the 2021 calls of the Climate Neutral and Smart Cities mission.
- 6 projects involving 9 single Belgian participants received over EUR 3 million for the 2021 calls

EU453 Mission on Adaptation to Climate Change, European Commission, 2023

https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/adaptation-climate-change_en

454 EU Mission Climate-Neutral and Smart Cities, European Commission, 2023, https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/climate-neutral-and-smart-cities_en

455 Explore Partnerships, ERA-LEARN, 2023, accessed 8/3/2023 https://www.era-learn.eu/network-information/networks?cid=, 2023 & el_type = & el_status = & funding_framework = HorizonEurope & societal_challenges = horizon-c5 & coord = Explore Partnerships, ERA-LEARN, 2023, accessed 8/3/2023 https://www.era-learn.eu/network-information/networks?cid=, 2023 & el_type = & el_status = & funding_framework = HorizonEurope & societal_challenges = horizon-c5 & coord =

456 Explore Partnerships, ERA-LEARN, 2023, accessed 8/3/2023 https://www.era-learn.eu/network-information/networks?cid=, 2023 & el_type = & el_status = & funding_framework = HorizonEurope & societal_challenges = horizon-c6 & coord = Explore Partnerships, ERA-LEARN, 2023, accessed 8/3/2023 https://www.era-learn.eu/network-information/networks?cid=, 2023 & el_type = & el_status = & funding_framework = HorizonEurope & societal_challenges = horizon-c6 & coord =

Horizon Europe457 Dashboard, R & I Project, Self-service, European Commission, accessed 8/3/2023

<https://webgate.ec.europa.eu/dashboard/sense/app/98dcd94d-ca66-4ce0-865b-48ffe7f19f35/sheet/QCdc/state/analysis>

of the Mission on Adaptation to Climate Change.

- The EIC Data Hub has made it possible to identify at the beginning of March 2023 42 SMEs benefiting from the accelerated EIC since its launch in 2018. They received a total of EUR 192 million. Around 7 could be linked (project title) to energy and climate issues and received around EUR 17 million.

In addition, on Horizon Europe “missions”

- 2 regions (Wallonia, Flanders) and 4 cities (Blankenberge, Louvain, Hasselt, Ottignies-Louvain-La-Neuve) signed the Charter of Mission Adaptation to Climate Change (7/03/2023).⁴⁵⁹
- The Brussels-Capital Region (city region), Antwerp, La Louvière and Leuven were selected by the European Commission for the mission on cities in April 2022⁴⁵⁹ Leuven was also selected as a pilot by the NetZeroCities project, which manages the mission platform.⁴⁶⁰

Belgian innovation actors can also benefit from grants, equity programmes and the EIT KICs (Knowledge & Innovation Communities) network, in particular EIT Climate-KIC⁴⁶¹ and EIT InnoEnergy.⁴⁶³

LIFE

The LIFE programme is highly relevant for this plan, particularly for these two sub-programmes.

- The sub-programme **Climate Change mitigation & Adaptation** ⁴⁶³ contributes to the transition to a sustainable, climate-neutral, sustainable, energy-efficient and renewable-energy economy. It has 3 components:

With regard to mitigation, the sub-programme finances pilot projects, demonstrations and the exchange of good practices in agriculture, land use, peatland management, renewable energy and energy efficiency. It also supports the implementation of EU legislation.

In the field of adaptation, the programme co-finances pilot projects, demonstrations and exchanges of good practices on urban adaptation, land use planning, infrastructure resilience, sustainable water management, resilience of agriculture, forestry and tourism.

The adaptation and mitigation components also finance integrated projects that implement European policy in this field at regional or national level.

Lastly, the climate governance and information component finances information, awareness-raising and dissemination projects.

European⁴⁵⁹ Commission, EU Missions: 100 climate-neutral and smart cities, European Commission, 2022, <https://data.europa.eu/doi/10.2777/191876><https://data.europa.eu/doi/10.2777/191876>

⁴⁶⁰ PilotCities Programme, NetZeroCities, accessed 14/03/2023, <https://netzerocities.eu/pilot-cities-programme/> Programme PilotCities, NetZeroCities, accessed 14/03/2023, <https://netzerocities.eu/pilot-cities-programme/>

⁴⁶¹ Climate-KIC | The EU's main climate innovation initiative Climate-KIC | The EU's main climate innovation initiative

⁴⁶² <https://www.innoenergy.com>

⁴⁶³ Mitigation and Adaptation, CINEA, 2023,

https://cinea.ec.europa.eu/programmes/life/climate-change-mitigation-and-adaptation_en

climate and Adaptation, CINEA, 2023,

https://cinea.ec.europa.eu/programmes/life/climate-change-mitigation-and-adaptation_en

Mitigation of change

- The Clean Energy Transition⁴⁶⁴ continues the Intelligent Energy Europe programme (2003-2013) and the Horizon 2020 Energy Efficiency Calls. It has almost EUR 1 billion for 2021-2027. It finances coordination and support actions to help overcome social and economic barriers to sustainable energy and involves multiple actors at several levels, including local and regional public authorities.

However, the LIFE programme does not fund research & but innovative and close-to-market projects.

According to the CINEA Project Portfolio (early March 2023)

- 44 projects with 86 Belgian beneficiaries have benefited from almost EUR 35 million from the climate sub-programme since 2014. This includes in particular the BE REEL Integrated Project (2018-2024), which involves, inter alia, the Flemish and Walloon regions to ensure that Belgium meets its building renovation targets for 2050.
- 32 projects with 63 Belgian beneficiaries have benefited from the Clean Energy sub-programme almost EUR 12 million since 2021. ⁴⁶⁵

Connecting Europe facility

The Connecting Europe Facility is highly relevant to its CEF Energy pillar,⁴⁶⁶ which supports the construction and upgrading of sustainable energy infrastructure, including cross-border renewable energy projects. This infrastructure must be part of the Trans-European Energy Network (TEN-E). The TEN-E identifies priority corridors and themes and draws up a biennial list of projects of common interest which are eligible for funding from the Energy EFC. For 2021-2027, EFC Energy is endowed with EUR 5,84 billion.

TEN-E covers, for example, in Belgium:

- The offshore grid of the North Sea.
- Western European hydrogen interconnections.

The fifth and final PCI list⁴⁶⁷ of 2021 includes:

- the internal lines at the northern border of Belgium between Zandvliet and Lillo-Liefkenshoek (BE), and between Liefkenshoek and Mercator, including a substation in Lillo (BE) (currently known as “BRABO II + III”)
- Interconnection between Lonny (FR) and Gramme (BE)
- Northern lights project – a commercial CO₂ cross-border transport connection project between several European capture initiatives (United Kingdom, Ireland, Belgium, the Netherlands, France, Sweden) and transport the captured CO₂ by ship to a storage site on the Norwegian

⁴⁶⁴ Clean Energy Transition, CINEA, 2023, https://cinea.ec.europa.eu/programmes/life/clean-energy-transition_en

Clean Energy Transition, CINEA, 2023, https://cinea.ec.europa.eu/programmes/life/clean-energy-transition_en

⁴⁶⁵ CINEA Project Portfolio – Self-service | Sheet – Qlik Sense (europa.eu)

⁴⁶⁶ CEF Energy, CINEA, 2023 https://cinea.ec.europa.eu/programmes/connecting-europe-facility/energy-infrastructure-connecting-europe-facility-0_en

⁴⁶⁷ Commission Delegated Regulation (EU) 2022/564 of 19 November 2021 amending Regulation (EU) No 347/2013 of the European Parliament and of the Council as regards the Union list of projects of common interest, OJ L 109, 8.4.2022, p. 14 – 31, <https://eur-lex.europa.eu/legal-content/FR/TXT/?uri=CELEX:32022R0564.1-4-31>, <https://eur-lex.europa.eu/legal-content/FR/TXT/?uri=CELEX:32022R0564>.

continental shelf

- CO2 transport aims to develop infrastructure to facilitate the large-scale capture, transport and storage of CO2 from Rotterdam, Antwerp and North Sea Port

According to the CINEA project portfolio (early March 2023), between 2014 and 2020, 4 projects involving Belgian participants received almost EUR 6 million.

Europe Digital Programme

The Digital Europe programme funds projects to facilitate the use of digital innovative technologies by businesses, citizens and administrations. It is therefore no longer a matter of research and innovation, but rather a large-scale implementation of technologies. The programme also contributes to the implementation of the Green Deal with relevant opportunities for this plan in the part for the use of technologies by society and the economy, with a total of EUR 1,1 billion. In 2021-2022, a budget of EUR 155 million was allocated for the Destination Earth initiative and other preparatory actions for the Green Deal. 468 For example, several Belgian actors are involved in the project selected for the governance of the [Living-in.eu](https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/projects-details/43152860/101083615/DIGITAL) HYPERLINK "https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/projects-details/43152860/101083615/DIGITAL" community to deploy digital technologies for cities and communities. In 2023-EUR 2024 60 million are budgeted for the Destination Earth initiative, which aims, inter alia, to simulate the impact of climate change, and EUR 15 million to develop CitiVerse to serve climate neutral cities. Climate change was more widely 'mainstreamed' as a cross-cutting priority in the programme so that the various technological innovations also contribute to it. 469

InvestEU:

The InvestEU Programme is particularly appropriate to finance larger scale investment projects in addition to private financing. The use of guarantee applications is channelled through authorised financial intermediaries including the EIB Group (which holds 75 % of the total budget guarantee volume as a result of the European Fund for Strategic Investments (EFSI) and national public banks. For the time being PMV (Flanders) has been accredited to become an implementing actor and is also a member of the InvestEU Steering Board. But the question could arise for other regional and federal investment companies. It should be noted that Belgium has not chosen to transfer cohesion policy funds to the "compartment" part for the Member States.

The EIB Group is in the process of selecting the financial intermediaries that will redistribute financing to SMEs in particular. The list of financial intermediaries (including regional investment companies) is available on this webpage. 470 It includes the intermediaries of the previous programmes that have been

Work468 Programme Europe NUMERIQUE 2021-2022, European Commission, 2021, https://ec.europa.eu/newsroom/repository/document/2021-46/C_2021_7914_1_EN_annexe_acte_autonome_cp_part1_v3_x3qnsqH6g4B4JabSGBy9UatCRc8_81099.pdf

Annual work Europe NUMBER 2021-2022, European Commission, 2021, https://ec.europa.eu/newsroom/repository/document/2021-46/C_2021_7914_1_EN_annexe_acte_autonome_cp_part1_v3_x3qnsqH6g4B4JabSGBy9UatCRc8_81099.pdf

469 Digital Europe programme's multiannual work programme for 2023-2024, European Commission 24/03/2023 <https://digital-strategy.ec.europa.eu/en/library/digital-europe-programmes-multiannual-work-programme-2023-2024>

470 Access to EU funding – Belgium, YourEurope, European Commission, 2023

https://europa.eu/youreurope/business/finance-funding/getting-funding/access-finance/search/en/financial-intermediaries?shs_term_node_tid_depth=77 Access to EU funding – Belgium, YourEurope, European Commission, 2023 https://europa.eu/youreurope/business/finance-funding/getting-funding/access-finance/search/en/financial-intermediaries?shs_term_node_tid_depth=77

brought together in InvestEU as well as funding from the European Fund for Strategic Investments (EFSI) or the Juncker Plan.

For example, the EIF selected ING in Belgium to deploy bank guarantees for the InvestEU sustainability envelope. The guarantee covers EUR 100 million of guarantees to support a portfolio of loans of at least EUR 140 million for SMEs and small mid-caps. In addition, contracts are being negotiated and signed (in June 2023) with regional investment companies, which will amount to around EUR 40 million of additional financing for sustainability.

On the equity purchase side, contracts were signed by the EIF with 3 Belgian investment funds for investments in innovative start-ups (ITI) for an amount of approximately EUR 116 million. Discussions are ongoing with other funds for both investments in start-ups (ITI, Innovative Technology Investments) and in growth and development activities (LMM, Lower mid-market). In both cases, some of these funds are specialised in sustainability.

Part of InvestEU funding is also directly accessible by Belgium or its regions for significant public investments. For example, the Brussels Capital Region received a loan of EUR 475 million⁴⁷¹ to improve the quality and sustainability of its public transport.

In total, according to the EIB website, between 2014 and 2023, 28 projects in the field of energy were financed for a total of EUR 3,3 billion. The other themes do not make it possible to identify specific climate finance. One example is Belfius Smart Cities Climate & Circular Economy I472 and II,473 which twice provided EUR 200 million in loans to Belgian cities and municipalities. It should also be noted that the InvestEU Portal acts as an intermediary with investors and includes 80 Belgian projects (as of 27 February 2023).

Recovery and Resilience Plan (RRF):

The EUR 7,5 billion MDG plan for Belgium includes 119 investment projects and 40 reforms, to be completed by the end of 2026. These are divided into five thematic axes corresponding to the main challenges Belgium will face in the coming decades:

- Sustainability and climate: according to an independent study, the plan is the second greener in the European Union. 51 % of the plan's expenditure will contribute to this objective, including by improving renovation, developing transition technologies and enhancing biodiversity. The environmental impact of the projects was carefully analysed, as no projects have a negative impact on the environment and climate.
- Digital transformation: the COVID-19 crisis has highlighted more than ever the need to develop our digital infrastructure and solutions, and to bridge the digital divide. Around 27 % of the plan's spending is spent on projects to strengthen our cybersecurity capabilities, improve digital public services for citizens and businesses, and accelerate the deployment of efficient infrastructure (fibre, 5G, etc.) for as many as possible.

[intermediaries?shs_term_node_tid_depth=77](#)

⁴⁷¹Belgium: Brussels – EIB supports the modernisation of sustainable public transport, EIB, 19/12/2022

[Belgium: Brussels – EIB supports modernisation of sustainable public transport](#)

modernisation of sustainable public transport, EIB, 19/12/2022,

[Belgium: Brussels – EIB supports modernisation of sustainable public transport](#)

⁴⁷²Belfius Smart Cities Climate & Circular Economy, EIB, accessed 14/3/2023,

<https://www.eib.org/fr/projects/loans/all/20150899><https://www.eib.org/fr/projects/loans/all/20150899>

⁴⁷³ Belfius Smart Cities Climate & Circular Economy, EIB II, accessed 14/3/2023, <https://www.eib.org/fr/projects/loans/all/20150899>

- Mobility: to succeed in the climate transition while offering mobility solutions to our citizens, it is necessary to review our modes of transport. The plan therefore invests in cycling infrastructure, rail transport and electrification of transport modes.
- Human and Social: the pandemic has revealed or exacerbated some inequalities, notably in education and health. The plan is therefore also a social plan, investing in education, housing for the most deprived and health to ensure social cohesion and a more calm society.
- Economy, productivity and innovation: to ensure a dynamic and environmentally-friendly economy for future generations, we need to invest in training and innovation and in the revision of production methods. The projects under Axis 5 of the plan will enhance the skills of the workforce, make our companies more innovative and steer them gradually towards the circular economy.

REPowerEU:

Under NextGenerationEU, Member States will be able to add a new REPowerEU chapter to their national recovery and rehabilitation plans (RRPs) to finance key investments and reforms that will help achieve REPowerEU objectives. One of the key objectives of REPowerEU is to increase the resilience, security and sustainability of the Union's energy system by reducing dependence on fossil fuels and diversifying energy supply at Union level, including through increased use of renewable energy, energy efficiency and energy storage capacity. A final decision is still awaited.

Federal State

Infrastructure for Belgium Fund

"Infrastructure for Belgium Fund" I4B474 is a fund that focuses on long-term infrastructure investment, in collaboration with key industrial partners. The Fund aims to support the development of the real economy and address the need for secure and reliable infrastructure.

Relaunch for the Future

The Transformation Fund consists of two components, including the recovery (EUR 500 million) entrusted to the subsidiary FPIM established on 25 May 2021: "*Relaunch for the Future*". In the short term (until the end of 2021), the subsidiary focused mainly on supporting companies affected by the COVID-19 crisis, and sought to strengthen their creditworthiness. Investments in the short-term launch took place under the regional recovery initiatives and a Belgian recovery fund created to invest the federal government in companies affected by the coronavirus crisis, in addition to regional initiatives. These companies, with more than 5 FTEs, who wanted to increase their capital as a result of the coronavirus crisis, had to be able to demonstrate that they were viable by the end of 2019 and that they were still in place in 2021.

This support for companies suffering from the COVID-19 crisis was extended at the end of 2022 to companies that suffered from the energy crisis in 2022.

In the longer term, "*relaunch for the Future*" will encourage companies to achieve the transition in terms of mobility, social, economic and digital transition. "*Relaunch for the Future*" will seek to enable these

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companies to integrate these economic transformations into their business model, taking into account the Do No Significant Harm principle and the recommended environmental, social and governance (ESG) standards at European level.

Green Transition Fund

An amount of EUR 250 million was allocated to SFPIM under a delegated mandate for investments in green transition projects. Within SFPIM's Board of Directors, an Ecological Investment Committee was set up to study the various investment projects under this budget.

Investments under this fund will be carried out in accordance with the following principles:

- Investments can be made in any existing or start-up company whose business model demonstrates, in addition to a financial return, a significant contribution to the green transition, taking into account in particular the European taxonomy of sustainable economic activities and the environmental, social and governance (ESG) standards recommended at European level;
- The investments are intended to meet long-term capital needs and contribute to the achievement of the sustainability objectives set by the undertakings concerned;
- Investments must comply with the usual financial and non-financial criteria and the usual risk allocation for this type of investment vehicle;
- The sustainability objectives set for each investment shall be monitored regularly, and at least once a year, on the basis of standard measurement systems.

Energy Transition Fund

The Energy Transition Fund aims to encourage and support energy research, development and innovation – within the federal energy authorities.

In this context, the Directorate-General for Energy is organising an annual call for projects in accordance with Article 3(1) of the Royal Decree of 9 May 2017 laying down the conditions for using the Energy Transition Fund.

The competences of the federal state are represented in the energy transition and are divided into three thematic axes:

- Thematic axis 1: renewable energy sources in the Belgian exclusive economic zone of the North Sea and biofuels
- Thematic axis 2: nuclear energy applications
- Thematic axis 3: security of supply and grid balance

The budget of the Energy Transition Fund for 2023 amounts to EUR 25 million, which can be awarded in the form of a grant to projects that fulfil all relevant conditions and concern research and development, investment in research infrastructure or innovation by SMEs, and a budget of EUR 25 million is foreseen in 2024.

Region Walloon

The TIMES economic optimisation model used for drawing up the scenarios of the Plan provides an assessment of the total cost of the system (investments, fixed and variable costs, fuel costs, etc.) discounted⁴⁷⁵ over the whole period considering hurdle rate⁴⁷⁶ for each scenario. The total cost of the system by 2030 is 12 % higher in the WAM scenario than in the WEM scenario. The model results also provide the overall investment costs, based on the technologies considered in the model. By 2030, the updated investment costs of the WAM scenario are around 18 % higher than in the WEM scenario. These investments will in particular generate savings on the energy bill.

In addition, sector-specific analyses are available. For more details on the investments generated annually, the reader is referred to in section 5.2.A. Specific evaluations include:

- The **long-term renovation strategy** approved in 2020 states that “investment needs are estimated at EUR 120 billion for residential and EUR 34-57 billion for the renovation of tertiary buildings over a period of 30 years”.

In particular, by 2030, an amount of EUR 54 billion is expected for the renovation of residential buildings. For the renovation of non-residential buildings, estimates for 2030 range from EUR 18 billion to EUR 31 billion.

⁴⁷⁵Based on a discount rate of 1.8 %

⁴⁷⁶ Hurdle rates’ are technology-specific/industry-specific discount rates that only apply to investment costs. These rates serve to consider certain risks, barriers (economic or not), expected returns or sector-specific capital costs. For example, for an investment in a risky technology, the investor will expect a higher rate of return on his investment (and the financing of his investment may be at a higher rate given the nature of his investment). If the technology-specific rate is higher than the general rate (which is always the case in the model when a specific rate is defined), then the investment cost “increases” to take into account these specific barriers, risks, rates of return/financing expected in the particular sector in question.

The following tables show the ⁴⁷⁷ ⁴⁷⁸ estimated investment needs for **renewable electricity and heat production** by 2030.

	Investment cost 2030 p/r existing (EUR million)
Photovoltaic	4.926
Eolien	2.223
Hydroelectric	127

Table 18: Estimated investment needs for renewable electricity generation at the 2030 horizon – (Sources: Climact and Deplasse estimates for photovoltaic and wind, a TIMES model for hydropower). The cost does not take into account the update

	Investment cost 2030 p/r to existing (EUR million)
Solar Thermal	25
Heat pumps	3.828
Deep geothermal energy	447
Biomass	2.059
Cogeneration (biomass)	643

Table 19: Estimated investment needs for renewable heat production at the 2030 horizon. The investment cost does not take into account the update. (Source: estimates conducted by Climact and Deplasse for heat pumps, biomass and cogeneration, file 2018 internal administration calculation for solar thermal and deep geothermal)

The following table shows the estimated investment needs ⁴⁷⁹ for ⁴⁷⁹ transport-related energy infrastructure by 2030⁴⁸⁰.

	Objective 2030	Investment cost 2030 p/r 2020 (EUR million)
Hydrogen stations	20	65
Charging points for electric vehicles *:	40000	832
— public		
B2B solutions	185.000	1.510
LNG stations	3	2

⁴⁷⁷Without taking into account the update

⁴⁷⁸Without taking into account the update

On the basis of the available⁴⁷⁹ data, the cost of transport infrastructure is not widely estimated.

⁴⁸⁰Section 5.2. also assesses part of the other costs of the transport sector

CNG stations	220	79

Table 20: Estimated investment needs for energy infrastructure by 2030 (Sources: internal administration calculation file, based on different sources for costs). The cost does not take into account the update. (*) The amounts mentioned do not include the potential additional costs associated with the reinforcement of the power of the terminals (~ 1.800-EUR 4.000 per recharging point) or the installation of smart terminals.

ii. *Sector or market related risk factors or barriers in the national or regional context*

Flemish Region

The following is a general description of the investment needs. In 2019, a limited study contract led to an impact assessment of the draft Flemish Energy Plan 2021-2030 and the draft Flemish Climate Policy Plan 2021-2030. A broader and updated impact assessment for all sectors is currently lacking.

The plan includes significant investments in the different sub-sectors in order to achieve the targets set by 2030 and beyond.

Achieving zero-emission passenger transport requires massive investment in public transport, cycling infrastructure and charging stations to provide sufficient and reliable alternatives to conventional combustion engine vehicles. Investment in rail and inland waterways is also needed to make our freight transport more clear and comfortable and fast rail connections between EU cities as an attractive alternative to air transport. In the building sector, renovations need to be much deeper and faster than today, and a shift to sustainable heating (including heat pumps, district heating networks, etc.), which also requires substantial investment. The long-term renovation strategy estimates that the total investment to renovate all existing buildings to meet the 2050 long-term target will require more than EUR 200 billion (EUR 150 billion for residential buildings and EUR 57 billion for non-residential buildings).⁴⁸¹ For the industrial sector, emissions can only be significantly reduced while maintaining industrial activity if large-scale investments are made in the full modernisation of existing installations and in the construction of new high-tech production plants with low greenhouse gas emissions. Additional investments will also be needed in the agricultural sector to ensure the transition.

Increased electrification also requires significant investments in new climate-neutral generation capacities, in strengthening the electricity grid and in interconnections with our neighbouring countries. Finally, the transition also requires the development of a transport infrastructure for residual flows (including CO₂) and waste heat so that they can be maximised and recovered within and between sectors. In this context, it is important to maximise the opportunities offered by natural investment cycles.

The transition can only succeed if the total cost is limited as much as possible and sufficient funding can be mobilised to make the required investments. This mobilisation of sufficient funding is a challenge for both authorities, citizens and businesses. The authorities will only intervene in cases where there is a risk of market failure: investments at high risk or long periods of return, natural monopolies, investments with potential spill-over effects, etc. Thus, the authorities will invest significantly, particularly in infrastructure (water routes, cycle paths, etc.). In addition, both authorities and stakeholders will make maximum use of European funding sources (such as LIFE, Horizon Europe, Interreg, Connecting Europe Facility, Innovation Fund, ERDF, etc.) for projects contributing to the transition to a climate-neutral

⁴⁸¹See Flemish Long Term Renovation Strategy

Flanders. The Flemish Government will encourage this by providing information and facilitating things, on the one hand, and by proposing Flemish co-financing for projects that are part of the Flemish long-term strategy, on the other.

Region Walloon

A. Obstacles related to regulatory developments and length of administrative procedures

Duration of procedures

The length of administrative procedures represents a considerable time burden for both public and private investors. In addition to the length of the procedures, if the investment project is based on a proposal from the European Commission or a political body, the first, second reading, conciliation and the third reading may significantly change the regulatory forecasts and thus create a risk of partial loss of investment. In addition, a rejection of the proposal may also lead to a total or partial loss of an investment made on the basis of an announcement of the Commission's proposal. Possible future regulatory adjustments represent a risk of loss, but also a risk of lower private investment to avoid such losses.

High number of authorities

The high number of authorities required to give agreement prior to the completion of a project implies a significant need for investment in the initial phases of the project. There is thus a risk of loss of the investment, if public funding is not granted to the project, but also a risk of partial loss due to a readjustment of the project, necessary after the assessment and requests of the different authorities or regulatory changes.

B. Obstacles and risks related to the context of the European Union and the institutions

Complexity of procedures

The high number of EU funds is complex for both public and private investors. In particular for European companies favouring renewable energies, which could face difficulties with the lengthy and complex procedures linked to the European Union. Permitting procedures for renewable energy installation projects could delay the date on which the targets will be met, but could also hinder the investments linked to the Plan.

Competition from other Member States of the European Union

Since the various Member States of the European Union do not apply the same social regulations but benefit in part from the same sources of financing for the decarbonised transition, there is a risk that Belgium will not be able to achieve the objectives because of a lack of private investment for the benefit of other EU countries where labour costs are lower, or where regulations are more flexible.

Citizens excluded from decisions (top-down decisions)

Many renewable energy projects are facing the lack of confidence and opposition of the local population, saying they have not been consulted enough, in Belgium and across Europe. These civic oppositions may result in a blockage of certain projects even though a considerable investment has already been made, thus blocking the investment capacity of both private and public investors. In addition to the risk of blocking the amount invested, this could lead to investors' and communities' reluctance to certain projects, thus reducing investments in the key area of renewable energy or decarbonisation.

C. Investment risk

Network constraints

The current electricity grids, built years ago to support constant and centralised, non-renewable generation, are now connected to remote renewable energy sources (in areas favourable for production), leading to grid overload, with constraints to be put in place on the grid to avoid overloading.

These constraints force energy producers to disconnect their generation from the grid when the grid is overloaded, resulting in a loss of money that will then be passed on to the electricity price. Potential investments to avoid this risk of increasing electricity prices in rural areas could be very high. If no investment is made to adapt the electricity grid, the risk of an increase in the price of electricity will entail a significant financial risk for investors whose generation will be disconnected from the grid.

In other words, to a large extent, the Plan will have a significant impact on the distribution networks (electric mobility, decentralised and intermittent renewable energy, heat pump, decarbonised molecule, etc.), which will require massive investment in their networks (intensive asset) from distribution network managers (DSOs) in order to be able to accommodate these new modes of energy production and consumption.

It is therefore essential and therefore foreseen that the Walloon legal framework and the successive pricing methodologies support this policy of multi-ten-year investment leading to a decarbonised society by 2050. Indeed, the distribution networks have not been dimensioned for these new uses, which did not exist 15 years ago. It is therefore essential to modernise and strengthen these networks in order to enable them to accommodate all these new uses and to be a driver of the energy transition.

Evolution of metal or insulation prices

The renewable energy targets set by many countries will create a very high demand for the materials needed for the construction of many installations, including: copper, nickel, cobalt and lithium. Some scenarios foresee a sharp increase in prices and no stabilisation before 2030. This represents, on the one hand, a risk of an increase in the price of electricity which may lead to reluctance to finance such projects and, on the other hand, a risk of an increase in the necessary investment.

The same risk applies to insulating materials, as the high demand for materials for thermal renovations may lead to an increase in the price of insulating materials. The risk of an increase in the price of thermal renovation projects is therefore present.

Price volatility of energy production

Investment in renewable energy will increase the share of renewables in the Wallon/Belgian energy mix. The intermittent nature of renewable energy could, however, increase production instability and thus energy prices over time. Energy dependence also makes supply unstable in the event of a geopolitical

crisis. In general, the risks previously presented give rise to uncertainties related to energy consumption.

Increases in energy costs could lead to a loss of profitability for companies and reduce foreign investment⁴⁸². Finally, volatility in energy prices could pose the risk of inflation, and potential measures would have to be taken by the government to limit inflation⁴⁸³.

Risk of less significant or negative socio-economic impact

The investments made could have a negative socio-economic or environmental impact for certain areas. Some risks related to thermal renovation also need to be addressed, including the rebound effect of renovation⁴⁸⁴ and health risks related to the deterioration of indoor air quality.

D. Risks related to the financing of the plan

Risk brought about by the Stability Pact

The new budgetary framework proposed by the European Commission poses a risk to public investment in Belgium. According to the report of the Federal Planning Bureau at the request of the Deputy Prime Minister and Minister of Finance, Vincent Van Peteghem, the new budgetary framework, although abandoning criteria unfavourable to Belgium, is, according to some simulations, forcing Belgium to reduce its budget by 4 % in 4 years (EUR 23 billion) or 4.8 % in 7 years (EUR 28,5 billion), depending on the assumptions. The reduction of the budget risks reducing the public investment capacity of Belgium and thus the Walloon region. These strong budgetary constraints pose a risk to investment for the Plan.

The budgetary management of Walloon debt, which will require trade-offs in the medium term, is also a risk for the financing of the Plan.

Risk of too low demand for EU funding

The fact that there is still insufficient knowledge of the various funding possibilities offered by European Union funds creates a risk of loss of opportunity by not participating in calls for projects launched by the European Union, by not applying for grants or co-financing, Belgium and the Walloon Region take the risk of not carrying out projects for which investment would have been possible. On the other hand, Belgium and the Walloon Region run the risk of fully financing projects which could have benefited from European Union co-financing.

Risk of over-reliance on EU ETS funding

The EU ETS is a source of revenue for investments in the decarbonised transition, both for public actors through auctions and the Innovation Fund, and for private actors through the purchase or sale of allowances. From EUR 5/tonnes in 2017 to EUR 100/tonne in 2023, the carbon quota price has been very volatile in the last decade, although rising today, there is a risk of falling public funding in the event of a market drop. A reduction in the price of allowances would lead to a reduction in the budget of the

⁴⁸²<https://www.lecho.be/entreprises/energie/le-boom-des-prix-de-l-energie-secoue-les-entreprises/10355431.html>

⁴⁸³ <https://www.insee.fr/fr/statistiques/6524161>

⁴⁸⁴ As thermal renovation makes heating cheaper, businesses and households may tend to heat at a higher temperature than before renovation. This leads to energy savings below those expected.

Innovation Fund and a reduction in Belgian revenues from the auctions of allowances.

Risk of insufficient involvement of the private sector

The involvement of the private sector, both companies and households, is expected to account for a significant part of PACE's total investment. Too little involvement of this sector would reduce the total amount invested. This risk is particularly important for the thermal renovation of buildings. This risk is linked to the potential difficulty for private actors to access public (regional, national and European) and private financing through bank loans.

iii. Analysis of the aid or additional public resources to fill the gaps identified in point ii.

Region Walloon

A. Maximising the mobilisation of funding sources at European level

The European funds channel is not fully exploited, in particular because of the particularly high number of sources of financing in the energy sector with each of the different eligibility conditions and procedures and the lack of knowledge of the procedures to be followed aggravated by this situation.

Following a decision by the Walloon Government, Wallonia-Brussels International decided to set up a collaborative platform for identifying opportunities, networks and access to European funding for actors in the Walloon Region and the Wallonia-Brussels Federation. Wallonia Meets EU (WALMEET.EU), the name of this platform, has the task of creating bridges between Walloon operators and amplifying their mission to Europe in order to develop a strategy for optimising European opportunities. This ceiling is currently being implemented and will be able to support all Walloon players wishing to invest in European projects.

Furthermore, the SPW-TLPE's international and European strategy also mentions among its strategic objectives the need to improve its capture of European funding, the work is also ongoing and should make it possible to improve the mobilisation of European funding sources in the coming years. Finally, some of the actions in this plan, in the field of renewable energy, building renovation or local climate and energy policies, are also aimed at supporting public actors and project promoters in accessing European funds.

B. Mobilising regional and national sources of funding

The national strategic investment plan (PNIS), which is a federal competence, identifies the national investments needed by 2030. It is important to note that these are only needs and not allocated budgets. The investment opportunity will therefore depend on the reform of the European fiscal framework and the different federal budgets during this period.

Moreover, as this investment plan also includes private investment needs, it will therefore be necessary to mobilise private funds, in Belgium in general, and in Wallonia in particular.

On the one hand, the role of private investors is to support investments in energy infrastructure, both in the development of renewable energies and in the modernisation of the network. The NISP also believes that its role will be to develop innovative solutions in terms of transport and mobility (e.g. public transport, hydrogen, etc.). The public-private partnership structure (PPP) will enable these private investments to be mobilised for public investment.]

Public investment is focused on health and education, or the public is the only investor, but also in the renovation and construction of transport infrastructure. Public investment also aims to develop new skills through training.

C. Mobilising private funds

Some parastatals, industry associations and ASBL or individuals, but also financial institutions (banks, insurance, pension funds and other investment funds) have significant financial reserves, and public-private partnerships (PPPs) thus offer authorities the opportunity to make investments without significantly increasing public debt. In addition, the value of PPPs can be justified in particular by the strong interest and technical expertise of many private companies, for example, in the construction and energy sectors', as well as by a 'possibility of fiscal deconsolidation, depending on the precise structure of the partnership'.

This appears to be a priority in the context of the renovation strategy, for which several measures have been prioritised to develop the legal and regulatory framework for ESCO and energy performance contracting (EPC) in Wallonia (section 3.2.3).

This type of measures could be extended to other sectors where PPPs have a role to play, in particular for the development of transport and digital infrastructure enabling the emergence of smart mobility solutions⁴⁸⁵.

5.4. Impacts of planned policies and measures described in section 3 on other Member States and regional cooperation at least until the last year of the period covered by the plan, including a comparison with projections of existing policies and measures.

- i. *Impacts on the energy system of neighbouring countries and other Member States in the region, where possible*
- ii. *Impact on energy prices, public services and energy market integration*
- iii. *Where appropriate, implications for regional cooperation*

Federal trial

Combined with the strong Belgian and European offshore wind energy ambition, increasing interconnection ensures better access to green energy produced across Europe. This also means that every consumer can benefit from the lower prices created by green energy, as greater interconnection leads to the elimination of congestion and price convergence at more moments than ever before. An example of this is the TritonLink interconnection project with Denmark: the aim is to provide both countries with common access to cheap green wind energy when this is less available at national level.

⁴⁸⁵ see for example: ITS.be

³⁹⁹ <https://www.vlaanderen.be/veka/studies/studie-over-de-uitbreiding-van-emissiehandel-naar-gebouwen-en-transport-2021>