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Assessment of the draft updated National Energy and Climate Plan of Czechia

Accompanying the document

COMMISSION RECOMMENDATION

on the draft updated integrated national energy and climate plan of Czechia covering the period 2021-2030 and on the consistency of Czechia's measures with the Union's climate-neutrality objective and with ensuring progress on adaptation

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1 SUMMARY

1.1 Overview of key objectives, targets and contributions in the draft updated NECP

The European Green Deal, the fast-evolving geopolitical context and the energy crisis have led the EU and its Member States to accelerate the energy transition and set more ambitious energy and climate objectives, including objectives to diversify energy supplies. These developments are reflected in the legislative framework adopted under both the 'Fit for 55' package and the REPowerEU plan.

Czechia's draft updated national energy and climate plan ('the draft updated NECP' or 'the plan'), submitted on 23 October 2023, partially takes into account this new geopolitical and legislative framework.

Table 1: Summary of key objectives, targets and contributions of Czechia's draft updated NECP

		2020	Progress based on latest available data	2030 national targets and contributions	Assessment of 2030 ambition level
	Binding target for greenhouse gas (GHG) emissions compared with 2005 under the Effort Sharing Regulation (ESR) (%)		2021: -5.9% 2022: -8.8%[1]	-26%	NECP: -18.7%
	Binding target for net GHG removals under the Regulation on Land Use, Land Use Change and Forestry (LULUCF)		Reported net emissions of 8.26 Mt CO_2 eq. in 2021 and reported approximated net emissions of 11.50 Mt CO_2 eq. in 2022	- 827 kt CO_2 eq. (additional net removals) - 1 228 kt CO_2 eq. (total net removals)	Likely to fall short of the target
	National target/contribution for renewable energy: Share of energy from renewable sources in gross final consumption of energy (%)	17.3% (SHARES) 13% (Target)	2021: 17.7%	30%	Czechia's contribution of 30% is slightly below the 33%, required according to the formula set out in Annex II of the Governance Regulation
	National contribution for energy efficiency:				

[1] The ESR emissions for 2021 are based on final inventory data and for 2022 on approximated inventory data. However, the final ESR emissions for 2021 and 2022 will only be established in 2027 after a comprehensive review.

	Primary energy consumption	44.3 Mtoe	2021: 39.6 Mtoe	28.8 Mtoe	Czechia's primary energy consumption contribution is 28 800 ktoe; EED recast Annex I formula: 28,800 ktoe
	Final energy consumption	25.3 Mtoe	2021: 26.2 Mtoe	20.2 Mtoe	Czechia's final energy consumption contribution is 20 200 ktoe. EED recast Annex I formula: 20 200 ktoe
	Level of electricity interconnectivity (%)	27.5%	25.3%	15%[2]	

Source: Eurostat; Czechia's draft updated national energy and climate plan

1.2 Summary of the main observations[3]

Czechia submitted its draft updated NECP more than three months after the deadline of 30 June 2023[4]. Therefore, the European Commission has therefore had limited time to draft its assessment to enable Czechia to submit its final draft updated NECP by the legal deadline of 30 June 2024.

Czechia's draft updated NECP refers to the revised energy and climate targets recently agreed under the 'Fit for 55' package and the REPowerEU plan. However, it does not sufficiently elaborate on how these targets will be effectively reached.

Regarding the reduction of greenhouse gas emissions under the Effort Sharing Regulation (ESR), the plan provides emission projections demonstrating that with both existing and additional policies and measures, Czechia is not on track to meet its national greenhouse gas target of -26% in 2030 compared to 2005 levels. According to Czechia's projections, there is gap of 7.3 percentage points, highlighting the need for more ambitious climate action.

On Land Use, Land Use Change and Forestry (LULUCF)[5], the draft updated projections in the plan indicate that Czech Republic is likely to fall short of the 2030

[2] Calculated by the European Commission based on the ETNSO-E data (Winter Outlook 2022-2023). The 2030 level represents the general interconnectivity target of 15%. The level of ambition cannot be assessed, because the actual 2030 interconnectivity levels will depend on the implementation of the planned interconnectors and changes in the generation capacity.

[3] In addition to the notified draft NECP, this assessment also considers informal bilateral exchanges, which are part of the iterative process established under the Governance Regulation.

[4] Article 14 (1) of Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action OJ L 328, 21.12.2018, p. 1–77.

[5] Regulation (EU) 2018/841 of the European Parliament and of the Council of 30 May 2018 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 No 529/2013/EU (OJ L 156, 19.6.2018, p. 1).

ambition, highlighting the need for enhanced climate action. The draft does not clearly set out a pathway to increase the land sector's contribution to the EU's overall enhanced climate target. Despite identifying several relevant policies and measures in terms of forest regeneration, the draft plan states that complying with the "no debit rule" in the first period will be challenging which is likely to have an impact on reaching the 2030 target. The draft updated NECP does not provide a clear implementation timeframe nor quantification of the impacts of specific policies and measures. It also lacks information on the status and progress in ensuring higher tier levels and geographically explicit datasets needed to ensure the robustness of net removal estimates.

On Carbon Capture, Utilisation and Storage (CCUS), the plan identifies annual CO_2 emissions that can be captured after 2035. However, no CO_2 emissions that can be captured by 2030 have been identified. The plan mentions that there are limited possibilities for CO_2 storage capacity and hence, Czechia is looking at exporting CO_2 to other countries, with the North Sea being the preferred option.

The draft updated NECP reflects partial progress towards international commitments under the Paris Agreement. While Czechia confirms commitment to phase out the use of coal for energy and heat generation by 2033, the existing fossil fuels subsidies are discussed without including a precise timeline to phase them out.

Regarding adaptation to climate change, the draft updated NECP does not contain adequate analysis of the relevant climate vulnerabilities and risks for the achievement of the national objectives, targets, and contributions and the policies and measures in the individual dimensions of the Energy Union. Energy infrastructure is often vulnerable to floods, however, the draft updated NECP does not outline nature-based adaptation measures leading to water retention on the whole surface of the landscape. The link to the specific Energy Union objectives and policies, which adaptation policies and measures should support, is not specified and quantified. Adaptation policies and measures to support Czechia's achievement of national objectives, targets and contributions under the Energy Union are not properly described in terms of their scope, timing and expected impacts. Adaptation efforts for ensuring sufficient water resources for cooling nuclear power plants, are not sufficiently outlined in the plan.

On renewable energy, Czechia's draft updated NECP presents a contribution to the overall EU target of 30% of renewables in gross final energy consumption by 2030. This is slightly below the share of 33% resulting from the formula in Annex II of Regulation (EU) 2018/1999 on the Governance Regulation of the Energy Union and Climate Action (the 'Governance Regulation'). The draft updated NECP does not include trajectories for renewables in the electricity, transport and heating and cooling sectors as per Directive (EU) 2018/2001 on the promotion of the use of energy from renewable sources, as amended by Directive (EU) 2023/2413 ("revised RED II"). Moreover, the draft updated NECP does not include trajectories for renewable fuels of non-biological origin (RFNBOs). While Czechia's draft updated NECP does [illegible] a list of measures that Czechia has adopted to support the deployment of renewables, it does not include a comprehensive framework of policies and measures that Czechia intends to adopt in this regard across all the relevant sectors. It is not clear if Czechia will also reflect the increased EU ambition for renewable energy in their renewable energy contribution when submitting the updated final NECP.

On energy efficiency, Czechia's draft updated NECP is a rather comprehensive and relatively robust strategic document. The draft updated NECP sets out a national indicative energy efficiency contribution that corresponds to 20.2 Mtoe for the final energy consumption and 28.8 Mtoe for primary energy consumption by 2030. This target is in line with the formula of Annex I of the Directive EU 2023/1791 on energy efficiency and amending Regulation (EU) 2023/955 (recast) ('EED recast')[6]. However, Czechia estimates that the planned policies and measures would only lead to a final energy consumption (FEC) of 22.57 Mtoe. Therefore, additional policies and measures are needed in the final plan to close this gap.

The draft updated NECP sets an accurate target on energy savings and presents most of the related measures in a well-structured way. However, the draft updated NECP lacks necessary information for several aspects of the EED recast, including: (i) energy consumption reduction and renovation target in the public sector, (ii) application of the energy efficiency first principle, and (iii) the quantification of the effect of measures targeting energy poverty.

On buildings, the draft updated NECP outlines the most ambitious scenario that is included in the 2020 long-term renovation strategy. Czechia envisages to increase the renovation rates including their depth which could lead to a reduction in the final energy consumption of the building sector of 17% by 2030, 34% by 2040 and 44% by 2050 as compared to the baseline year 2013. The draft updated NECP details some measures supporting this ambition, partly financed by the structural funds´ operational programmes, the RRPs and modernisation fund. However, the expected contribution to energy savings of each of the building-related measures or group of measures is not specifically quantified in the draft updated NECP.

On the energy security dimension, the draft updated NECP sets out targets and policies to increase the security of Czechia's national supply of gas, electricity and oil. To ensure security of **gas** supply and to compensate Russian gas imports, which used to cover almost 100% of Czechia's gas imports, the plan emphasises the diversification of supply routes and ambitious objectives in terms of renewable gases deployment, e.g., ambitious targets for low-carbon hydrogen production and hydrogen infrastructure. The plan does not clearly describe implemented gas demand reduction measures, nor does it explain how Czechia intends to integrate such measures into the medium-term planning towards 2030. The plan also refers several times to the *2015 Energy Concept* which is currently being updated. Several key assumptions might therefore still evolve in the final version of the NECP.

On the electricity sector, despite the plans to further develop nuclear power, the phase-out of coal still raises the question of resource adequacy in the electricity system. While the draft updated NECP describes support to the deployment of power storage, it does not set out a specific and dedicated measurable target. On the **oil sector**, the plan presents Czechia's ongoing project to increase the capacity of the TAL pipeline in order to diversify Czechia's energy mix and reduce the use of Russian oil. However, the

[6] Directive (EU) 2023/1791 of the European Parliament and of the Council of 13 September 2023 on energy efficiency and amending Regulation (EU) 2023/955 (recast), OJ L 231, 20.9.2023, p. 1.

plan presents only few details on the expected impact of this project. The plan does also not include information on the future use of the Druzhba pipeline and necessary investments that are needed to enable the Litvinov refinery to refine oil of non-Russian origin. Moreover, the draft NECP does not provide information on how Czechia aims to reduce oil consumption.

Czechia's draft updated NECP includes a series of policy objectives and measures as regards the internal energy market, including measures to ensure the non-discriminatory participation of new market entrants as well as measures to strengthen flexibility (e.g., demand response, storage, self-consumption configurations, energy communities, vehicle-to-grid), without a clear objective. The draft updated NECP refers to Czechia's draft legislative act (LEX RZE 2) which will define energy communities and promote an active role of consumers in line with Directive 2019/944 and Directive 2018/2001. However, the draft updated NECP does not refer to the LEX RZE 2 provisions regarding the sharing of electricity and the creation of an electricity data centre. According to the draft updated NECP, Czechia is preparing the conditions for the deployment of smart metering. However, it lacks more details particularly on the smart metering rollout and strategies that will further facilitate consumer engagement. The plan also put forward key electricity infrastructure projects in light of the identified challenges such as removing congestion, but is failing to address the important cross-border infrastructure projects.

On energy poverty, the draft updated NECP states that Czechia does not have yet have a legal definition of the term energy poverty. The draft updated NECP broadly refers to social measures but does not include specific policies or structural measures targeting vulnerable customers aimed at improving energy affordability. It does also not include a governance framework to tackle energy poverty in the country. Furthermore, synergies with structural policies in the areas of energy efficiency, building renovation, access to renewables and skills are not structurally mentioned.

The research, innovation, competitiveness and skills dimension of Czechia's draft updated NECP contains general energy research and innovation (R&I) objectives. However, clear quantified targets and a corresponding timeline for implementation are missing for both 2030 and 2050. The draft updated NECP includes planned investments for the THÉTA programme - one of the main instruments to support applied research in the energy. However, the overall share of investments included in the total R&I spendings and within the spendings for 'green research' is not clarified. Czechia reports on the preparation of its national economic strategy 2030, including the national investment plan. In this regard, the plan defines Czechia's main economic objectives by 2030 that are based on ten pillars, including industry and energy, innovation and raw materials. The draft updated NECP also reports on Czechia's policy outlook in the industrial sector for the period 2021-2030 and with a view to 2050. Czechia's plan lacks information on the investments needed for the manufacturing of key components and equipment for net-zero technologies and how Czechia will ensure the resilience of its supply chain in the event of a declining production of domestic components and equipment. Czechia's draft updated NECP does not set quantitative targets on the digitalisation of the energy system. Moreover, the plan lacks information on measures and investments to overcome the identified gap in the area of skills.

The just transition aspect is addressed in a limited manner in the draft updated NECP. There is only limited information on employment, skills and social impacts of the energy and climate transition, including distributional impacts on vulnerable groups. Furthermore, the plan does not include concrete employment and skills policies and measures to tackle these issues more widely but focuses solely on the actions in the coal regions. In addition, the plan does not elaborate on the resources specifically devoted to supporting a just transition. Finally, the draft plan does not provide sufficient information for the preparation of the Social Climate Plan and how the consistency of the two plans would be ensured.

On its strategic alignment with other planning tools, the draft updated NECP covers only partially the implementation of the measures included in Czechia's RRP and those in the new REPowerEU chapter. Furthermore, the measures in the draft updated NECP only partially reflect the 2022 and 2023 European Semester Country Specific Recommendations related to energy security and energy efficiency that will allow Czechia to reduce dependency on fossil fuels. Overall, the draft updated NECP is still vague on how Czechia intends to address the current bottlenecks for the deployment of renewables and on Czechia's strategy to decarbonise district heating.

The investment needs are not quantified. The draft updated NECP does not provide details on the investment needs and funding sources for the various specific policies and measures proposed.

The analytical base of the draft updated NECP is generally based on a comprehensive quantitative analysis, covering all five dimensions of the Energy Union, although a significant part of the analysis has not been updated since the 2020 NECP including figures from 2018. However, both the with-existing-measures ('WEM') and with-additional-measures ('WAM') scenario are only available until 2040. The methodologies used for the projections and impact assessment of policies and measures are only explained in general terms. The plan incorporates a macro-economic assessment that provides useful information. Nevertheless, there is room for further development in the assessment. While the methodology for the assessment is generally clear, the results lack adequate explanation.

2 PREPARATION AND SUBMISSION OF THE DRAFT UPDATED NECP

2.1 Process and structure

Czechia has submitted its draft updated NECP on 23 October 2023, almost four months after the legal deadline. The level of participation and consultation of local authorities for the development of Czechia's draft updated NECP is not clearly explained. Local action is mentioned in relation to some policies and measures concerning climate mitigation in energy efficiency, local renewable energy generation, and transport and mobility. The draft updated NECP does not describe the role of the local level in implementing adaptation actions or in fighting energy poverty. The plan refers to city action mainly as a voluntary initiative and not as a possible important contributor to the plan's objectives. The plan does not provide information whether a strategic impact assessment of the draft updated plan has been done.

2.2 Public consultation

According to the draft updated NECP, an early public participation was ensured by a public consultation procedure before decisions were taken as well as throughout the whole decision-making process itself. Furthermore, the draft updated NECP states that the public consultation procedure will continue before the finalisation of the final updated NECP. The plan was open for public consultations through an online platform. The draft updated NECP does not specify targeted interest groups and adequate communication channels to notify and reach the public regarding their participation.

It is uncertain whether the time frame of three weeks for the public to prepare and participate effectively in the consultation process seems was sufficient. However, a total of 164 contributions were received during the consultation process. The draft updated NECP does not include: (i) information on whether the necessary information were provided to the public on the NECP's key objectives, targets and contributions; (ii) information on whether the public and stakeholders were informed of the regulatory context for the review as well as the decision-making procedure followed for the update; (iii) a summary of how the public's views were considered and addressed, or why they were not. Czechia has not established a multilevel energy and climate dialogue.

2.3 Regional consultations for preparing the draft updated NECP

There has been limited consultation with neighbouring countries or joint drafting of the draft updated NECP within the region. The plan indicates a single consultation of the Visegrad Four (V4), comprising the Czechia, Hungary, Poland and Slovakia. However, the consultation was not organised systematically and there the draft updated NECP does not include information on the main outcomes. The draft updated NECP also mentions some other bilateral and multilateral consultations. Czechia plans to use the V4 format to organise regional consultations on the updated NECPs during its V4 Presidency (from 1 July 2023 to 30 June 2024).

3 ASSESSMENT OF THE AMBITION OF OBJECTIVES, TARGETS AND CONTRIBUTIONS AND ADEQUACY OF SUPPORTING POLICIES AND MEASURES

3.1 Decarbonisation dimension

3.1.1 Greenhouse gas emissions, removals and storage

The draft updated NECP recognises the increased climate targets included in the ESR and the LULUCF Regulation, as part of the 'Fit for 55' legislative package but embeds them only partially.

The draft updated NECP does not set Czechia's commitment to achieve climate neutrality by 2050. It does not include concrete pathways to 2030 and to 2050 that are in line with the national long-term strategies and with the climate-neutrality objective set out in the European Climate Law. It is not clear from the draft updated NECP how the 2030 targets for the ESR and the LULUCF will be reached. The GHG emission projections in the draft updated NECP are outlined only until 2040. These projections are less ambitious

than those submitted in March 2023 under Article 18 of the Governance Regulation, which show net GHG emissions (including LULUCF and excluding international aviation) of 53 million tonnes of CO_2 equivalent (CO_2 eq.) by 2050 considering existing measures, and of 46 million tonnes of CO_2 equivalent with additional measures. This is equivalent to projected reductions by 2050, compared to 1990, of 72% and 76%, respectively. In the most recent years, net GHG emissions in Czechia have declined at a pace below the EU average, mainly driven by rising transport emissions and a shift from net removals to net emissions in the LULUCF sector. The information provided in the draft updated NECP does not allow for a full assessment as to whether Czechia's progress is consistent with the achievement of the EU climate-neutrality objective. However, based on all the available information, in addition to the lack of a commitment to achieve climate-neutrality by 2050, progress by Czechia towards the EU climate-neutrality objective appears insufficient.

The draft updated NECP reflects the required ambition under the ESR. However, the policies and measures in the plan do not collectively suffice to reach Czechia's obligation for the effort sharing sector. The ESR sets Czechia's 2030 emissions reduction target at -26% compared to 2005 levels. The draft updated NECP projects ESR emissions to be above this target, both with existing and with additional planned measures, highlighting the need for more ambitious climate action in the sectors involved. In the WEM scenario, Czechia falls short of the target by 9.1 percentage points, while in the WAM scenario Czechia still underachieves by 7.3 percentage points in the most optimistic scenario. In 2021, Czechia's ESR emissions were below the annual emission allowance (AEA) by 4.8 Mt CO_2 eq.

The draft updated NECP recognises this shortfall and new policies and measures are planned to be embedded in the upcoming update of the climate protection policy (Politika ochrany klimatu). Member States have flexibilities under the ESR to comply with their targets. No specific use of ESR flexibilities is mentioned by Czechia. To assess whether Member States comply, the use of saved AEAs from previous years is taken into account.

Only few specific policies are described to reach the ESR targets, revealing weak ambition. The policies include: (i) sectoral strategies in transport, agriculture, waste management and energy; (ii) transport measures such as tax exemption for low-carbon vehicles and subsidy programmes for zero-emission vehicles; (iii) agriculture measures such as support of biogas installations; (iii) and in the energy sector the support of photovoltaic and wind power plants as well as the intention of construction of new nuclear reactors.

Table 2: ESR target and projections in Czechia's draft updated NECP

ESR target and projections[7]					
	2030 target*	**2021 performance (inventory data) ***	**2022 performance (approximated data) ***	**2030 WEM projection***	**2030 WAM projection***
Czechia	-26%	-5.9%	-8.8%	-16.9%	-18.7%
EU	-40%	-14.5%	-16.9%	-27%	-32%

*Compared to the 2005 emissions as set out in Annex I of Commission Implementing Decision (EU) 2020/2126.

The draft updated NECP does not fully reflect the increased ambition of the LULUCF Regulation and in particular the 2030 national target requiring Czechia to deliver additional -827 Kt CO_2 eq. net removals to reach the total value - 1 228 Kt CO_2 eq. in 2030. According to the projections submitted in the draft updated NECP, Czechia will achieve a sink of between -0,49 to -1,63 Mt CO_2 eq. by 2030, most likely falling short compared to the 2030 value. This highlights the need for additional action in the sector. The draft updated NECP also concludes that achieving the no-debit target by 2025 will prove challenging. Moreover, the draft updated NECP does not clearly set a pathway to increasing the contribution of Czechia's land sector to the overall EU's enhanced climate target. While it does include an optimistic scenario, in which the 2030-target is met, this scenario is not further described in detail. This scenario will primarily depend on the rate of decline in the bark beetle infection and regeneration of forests.

The draft NECP only briefly describes the policies and measure to support the LULUCF sector, among which "The National Forestry Programme" containing key actions addressing climate related disturbances and creating conditions for more resilient forests deserves to be highlighted. The draft updated NECP does not specifically mention needs or ongoing measures to improve the monitoring, verification and reporting capacities in the LULUCF sector. Overall, Czechia does not clearly present how its policies and measures for the LULUCF sector will contribute to the long-term transition to climate neutrality by 2050. The plan projects a decrease in LULUCF removals up to 2040, while indicating that expected measures such as a diversification of stands with a higher proportion of broadleaf trees will result in more stable and resilient forests.

The draft updated NECP recognises the role of circular economy in climate change mitigation and highlights different national policies and measures, such as Circular Czechia 2040, recognising its role to improve resilience in the long term to future environmental threats, including climate change. The circular economy and its potential for GHG reduction is therefore recognised in the draft updated NECP but it remains unclear to what extent there has been an attempt to quantify or integrate circularity in the analytical basis.

[7] The comparison between the ESR target and emission projections does not take into account the flexibilities available for Member States under the ESR to comply with their 2030 targets. The ESR emissions will be comprehensively reviewed in 2027 (for the years 2021-2025) and 2032 (for the years 2026-2030).

The draft updated NECP includes policies and measures, including a detailed list of impacts, for improved access to zero- and low-emission mobility, transport and vehicles. These, however, also include several harmful fossil fuels subsidies favouring for instance CNG/LNG and LPG vehicles, for which no phase-out is foreseen. In addition, the outcome of the model used to assess the plan shows shortcomings versus the achievement of the revised RED II objectives for transport (WAM). The draft updated NECP includes measure to promote active mobility (walking and cycling) as reference to ad hoc planning tools. A good practice is the provision for towns and cities with more than 40,000 inhabitants to set up sustainable urban mobility plans. However, the focus on LNG for urban mobility is at odd with SUMP guidelines, where focus is on zero-emission urban logistics. The revision of the existing National Action Plan for Alternative Fuels to align it with the provisions of the new Alternative Fuels Infrastructure Regulation for road transport is quoted (the plan is currently largely focusing on C/LNG, therefore not aligned with AFIR), including measures for recharging points and hydrogen refuelling stations, which appear at a first analysis quantitatively compatible with AFIR requirements.

The draft updated NECP does not mention roadmaps and/or measures for the production and deployment of sustainable aviation fuels (SAF) to contribute to the ReFuelEU Aviation Regulation, and/or sustainable Inland waterways alternative fuels infrastructure. The plan includes measures for the electrification and the introduction of zero-emission technologies and related infrastructure in rail and modal shift towards low-carbon modes, albeit missing harmful fossil fuels subsidy reforms, as well as deployment of infrastructure for zero-emission aircrafts, shore-power infrastructure at ports.

The co-benefits of these measures for air quality are explained and quantified. The plan is generally consistent with CO_2 standards for cars[8], albeit the wrong targets are quoted in section 3.1.3.6 concerning CO_2 emission standards for cars and vans.

The draft updated NECP describes the planned efforts to capture and store CO_2. It identifies annual CO_2 emissions that can be captured, only starting in 2035. The average volume to be captured between 2035 and 2044 from ETS and non-ETS sources amounts to 8.1 Mtpa. According to WEM and WAM3 scenarios, 9 Mt could be captured annually during 2033-2042, and 18 Mt between 2043 and 2050. The plan identifies the sectors where CO_2 capture can be implemented: cement, steel, biomass, natural gas. No storage capacity assessment has been included; however, the plan mentions that there are limited possibilities for storage within the borders of Czechia (current estimations are in the range of thousands of tonnes of CO_2 per year) and that options for exporting CO_2 are sought for, with the North Sea being the preferred destination. According to the plan, Czechia does not have a strategy document dedicated specifically to CCS/CCUS technologies, but under the project "Building momentum for the long-term CCS deployment in the CEE region" a national roadmap for CCS technologies has been developed. This roadmap contains, inter alia, recommendations for policy setting in this area, but these are not materials approved in this form at the level of the Czech Government.

[8] An EU-level reduction per OEM of 55% for cars and 50% for vans of CO_2 emission per km by 2030; 100% reduction (only Zero-Emission Vehicles - ZEV) at 2035. Measures such as corporate cars incentives and any fiscal incentive for ZEV shall be reported.

The draft updated NECP does not provide any relevant information on policies and measures addressing various other sources of non-CO_2 emissions. The plan does not include measures aimed at mitigating methane emissions in energy, including fugitive emissions and fuel combustion, and N_2O from agricultural soils, fuel combustion and manure management. Regarding measures on methane emissions, the plan mentions waste prevention measures aimed at reducing the quantity and preventing the generation of food waste, but the provided information remains very vague. The draft updated NECP also mentions the development of biogas and bio-methane. It presents the electricity, transport and heating sectors as application areas and shows the expected distribution of bio-methane by feedstock: in 2030, agricultural waste and organic waste will constitute 60% and 40%, respectively, however with limited details. Considering Czechia's sources of methane emissions, however, this distribution raises the question of whether the plan considers all possible feedstocks sufficiently: in 2021, methane emissions from manure management made only 3% of the overall methane emissions, whereas landfill sites and wastewater constituted 28% and 7%, respectively. Thus, it seems that the potential use of organic waste and sewage sludge to produce biogas and bio-methane is not yet exhausted. For the agricultural sector, emissions are projected to increase up to 2030, particularly for the manure management and enteric fermentation categories, due to the projected increase in the livestock population. The draft updated NECP presents quantified numbers on projections for the WEM and WAM scenarios. There are several shortcomings here. First, in terms of ambition, both scenarios are very similar. The only difference are slightly more reductions of methane emissions in the WAM scenario. Second, N_2O emissions see a rise. The plan, however, does not include any meaningful measures except for vaguely mentioning the development of organic farming. Finally, the plan announces an increasing trend in GHG emissions from manure management and enteric fermentation. Hence, it remains either unclear how the plan seeks to address the top sources of non-CO_2 emissions, including methane emissions from landfill sites, enteric fermentation in agriculture, and solid fuels in energy, HFCs from refrigeration and air conditioning, and N_2O from agricultural soils. Furthermore, the plan indicates a decrease in F-gases, but remains unspecific on policies and measures.

The analytical basis of the draft updated NECP includes an assessment of the impact of policies and measures on the achievement of the GHG mitigation targets contained in the plan. The plan provides a list of policies and measures, organised by policy areas and scenarios (WEM and WAM). The policies and measures could be described in better detail, particularly in terms of their timing and impact. Based on the comparison of WEM and WAM scenarios, the policies and measures proposed in the plan will not allow Czechia to reach some targets set in EU and national legislation.

The draft updated NECP reflects partial progress towards international commitments under the Paris Agreement. It refers on several occasions to the objective to phase down the fossil fuel use for primary energy use to 50% by 2030 and confirms commitment to phase out the use of coal for energy and heat generation by 2033. The draft updated plan sets out projections for the development of energy sources substituting coal up to 2040, but without outlining a concrete timeline and measures at this stage. The existing fossil fuels subsidies are discussed, nevertheless, the draft updated NECP does not contain a precise timeline to phase them out. Furthermore, Czechia explains that the fossil fuel subsidy in the form of housing allowances is of social nature and hence Czechia does

not plan to abolish it but only modify it to take into account environmental impacts. Czechia will report on this in the relevant progress report.

On 20 December 2019, Czechia submitted to the Commission its national long-term strategy. The strategy does not include the goal of achieving climate neutrality by 2050. The goal is not currently enshrined into law. In March 2023, Czechia reported on the status of implementation of its initial NECP, where the goal of achieving climate neutrality by 2050 was not defined. A climate-neutrality goal is not established in the draft updated NECP.

3.1.2 Adaptation

Czechia has identified the main impacts of climate change and priority impact areas in its draft updated NECP. However, it has not provided an assessment of how climate vulnerabilities and risks may threaten the achievement of national objectives, targets and contributions in any of the five dimensions.

The draft updated NECP of 2023 lists five adaptation objectives, which were not included in the initial NECP of 2019. Concerning policies and measures on adaptation, Czechia refers to the national action plan for adaptation to climate change, which includes 108 adaptation measures. These, however, have not been outlined in the draft updated NECP.

Czechia has not referred to any planned and implemented nature-based solutions nor to resilience of energy systems to structural or seasonal water scarcity. Innovative approaches such as insurance policies and fiscal measures addressing the climate protection gap have not been considered. Investments aimed at minimising environmental impacts, such as biodiversity loss, have been considered in so far as reference has been made to funding from the EU Life Programme and from the Operational Competitiveness Programme, which both have biodiversity-related objectives.

3.1.3 Renewable energy

The renewable energy contribution proposed in the draft updated NECP is a share of 30% of the national gross final consumption of energy in 2030 and based on the WAM3 scenario without the inclusion of absolute values in terms of energy, which is an increase from 22% proposed in its 2020 NECP. It is not clear if the contribution of 30% has been calculated in line with the EU 2030 renewable energy target of 32% or the 42.5%. This contribution is below the share of 33% resulting from the formula in Annex II of the Governance Regulation. Czechia indicates that “revised REDII” was not yet in force by the time of the submission of their draft updated NECP.

The scenarios do not provide yearly overall renewable energy contribution trajectories and respective technologies, up to 2030, except for renewable hydrogen electrolysers. It does not include trajectories till 2040. The indicative trajectory to reach the 30% contribution in 2030 towards the EU 2030 renewable target of 32% is not provided, and neither the reference points for 2022, 2025 and 2027 have been provided.

The renewable electricity generation is projected to reach 37.5% in 2030 with solar power becoming the main source of renewable electricity (8 GW of solar power capacity ahead of wind (1.5 GW of wind power capacity, an increase of only 1.1 GW when compared with 2022). Bioenergy is expected to represent less than 1 GW of installed capacity. The updated draft updated NECP does not explain what the main obstacles Czechia is facing for the deployment of renewables, in particular wind, and it does not include any information on the **innovative target for renewable energy technologies deployment**. The draft plan includes some latest reforms adopted by Czechia to speed up the permitting procedures (under LEX RES 1), but it does not include any other reforms with an explicit reference to the revised RRP, including the designation of accelerated areas and the Single Environmental Permit.

Czechia has not included a target or a projection on the use of renewable energy in the heating and cooling sector to 2030 to achieve the binding average annual increase for the periods of 2021 to 2025 and 2026 to 2030, and neither on the use of renewable energy in district heating and cooling. Information on the use of **renewable energy in the industry and the renewable energy share in buildings** were also missing from the draft updated NECP.

In the transport sector, the share of renewable energy is projected to reach 24% in 2030 energy terms and to achieve a reduction of the greenhouse gas emission intensity of 14,5%. The increase over the period is mainly due to public programmes, such as the Operational Programme Transport (OPD), funded from the Cohesion Fund, supporting publicly accessible recharging and refuelling infrastructure. It also created a new specific objective for the purchase of fully emission-free electric-buses, including the construction of infrastructure for electric buses. The operational programmes include other measures in all priority axes to reduce GHG emissions, such as developing infrastructure for rail and other sustainable transport. The RRP also finance measures to support the decarbonisation of the transport sector, however the draft NECP does not make any references to it. In addition, the draft NECP indicates that pursuant to Act No 201/2012 on air protection, a fuel supplier is obliged to gradually reduce GHG emissions per unit of energy contained in the fuel in the full life cycle of the fuel. Czechia also promotes renewable fuels via reduction or tax exceptions.

A merged RFNBO and advanced biofuels target was included with a share of 3.1% in 2030, out of which 1% is RFNBO. Multipliers are included in the calculation of this trajectory as requested in Articles 25-27 of the revised REDII. However, the draft updated NECP lacks details when it comes to limitation of the contribution of conventional biofuels, in accordance with Article 27 of the Directive (EU) 2018/2001 and the related Delegated Regulation. The draft updated NECP refers to Czechia's updated National Clean Mobility Action Plan which provides a baseline scenario for the development of electromobility by 2030 and 2035, including targets for electric vehicles and the recharging infrastructure.

The draft updated NECP provides information on the capacity of electrolysers of 300-400 MW in 2030 and sets out projections for **RFNBO use in the transport and industry sectors**. In the updated draft updated NECP Czechia calculates that a 21% RFNBO consumption will be achieved in the industry sector. Czechia has estimated that, to meet the targets in the revised REDII, it needs around 0,0573 million tonnes per year of

renewable hydrogen in industry and 0.136 million tonnes per year of renewable hydrogen in transport by 2030 compared to the 0.0193 million tonnes that Czechia can produce indigenously by 2030. Regarding actions to facilitate **imports of renewable hydrogen**, the draft NECP announces that two hydrogen pipelines will be built, by converting existing pipelines to allow import capacity of around 1.5 million tonnes of hydrogen per year each. The draft updated NECP includes the objective to import hydrogen from North Africa, Ukraine and Southeast Europe, as well as from Scandinavia and the Baltic and North Sea areas. Some information regarding the pathway for oil-based transport fuel substitution through electrification and renewable hydrogen in land transport is provided in the Czech Hydrogen Strategy and the transport policy of the Czechia for 2021-2027 with a view to 2050, but the plan does not include sufficient information on policies and measures to support the achievement of the proposed objectives.

On **policies and measures**, in the **electricity sector** the objective is to accelerate the production of electricity from renewable energy through the use of reverse auctions. However, the draft updated NECP does not specify measures to facilitate uptake of long-term Power Purchase Agreements. On Guarantees of Origin Czechia continues the existing legislative framework and does not propose enhancements e.g., to improve consumers' information. When it comes to **joint projects**, Czechia states that on the basis of the NECP it will be possible to identify options for joint renewable energy projects and-of cross border impacts of policies, but does not elaborate on how this will be operationalised. One cross-border cooperation project is highlighted, the RESINDUSTRY project, which allows Czechia to exchange best practices in setting up subsidy programmes with 6 other Member States. Regarding PCI/CEF projects, Czechia indicates that two hydrogen projects under preparation are sought to obtain a PCI status in 2023, namely the Central European Hydrogen Corridor and the Czech-German Hydrogen Interconnector. The draft updated NECP provides information on measures taken recently to ensure an accelerated deployment of solar energy by simplifying and accelerating permit-granting procedures for **solar energy** that contribute to the objectives of the EU Solar Energy Strategy. However no details on which instruments are set to deliver on these objectives were included. Individual and collective self-consumption of renewable energy as well as **renewable energy communities** is considered as a means to achieve the objectives and have been supported through recent amendments to the national legal framework (the *Energy Act*). The establishment of renewable energy communities will be promoted through the Modernisation Fund and the New Green Savings 2030 programme. However, no quantitative targets for self-consumption and for energy communities were included in the draft updated NECP. The draft updated NECP does not present sufficient and well-described measures for promoting individual and collective self-consumption as well as renewable energy communities.

Czechia has not indicated whether it has put in place a strategy on **energy system integration**, but Czechia indicates that the indicative national target on demand response and storage will be set once the legislative process at EU level to reform the electricity market design is finalised.

Measures on promoting **renewables in heating and cooling** have been included to a limited extent in the draft updated NECP with some general references to the importance on promoting the uptake of renewable energy sources in this sector. However, the information provided in the plan does not allow to assess the impact of those measures in

relation to the achievement of the target in heating and cooling. The draft updated NECP contain some information on measures aimed at modernisation of district heating systems, and an assessment of the possibility to build new systems, notably in combination with the conversion of existing biogas power plants to biomethane use with cogeneration. The draft updated NECP refers to the importance of integration of small heat sources into smart grid systems and decentralised management, but it does not provide information on specific measures targeting integration between electricity and centralised heating and cooling networks. The draft plan makes reference to two assessments on decarbonisation of district heating and biomass carried out in the context of the RRP, however as the milestones are still not fulfilled it is not clear how that is reflected in the draft plan.

Some measures related to **bioenergy** availability and bioenergy sustainability have been included in the draft updated NECP. The draft NECP contains projections for biogas production, retrofitting the existing cogeneration plants to biomethane upgrading units and novel biomethane installations by 2030. Biomethane end-use is distinguished by source: Annex IX feedstock biomethane for transport (0.18 bcm) and the remaining for heating and cooling (0.3 bcm). The plan has not assessed exhaustively the impact that bioenergy trajectories may have on LULUCF sinks, biodiversity and air quality. Regarding biomethane the draft updated NECP did provide some elements as mentioned in Section 3.1.1. The cascading principle has not been highlighted exhaustively.

The draft updated NECP includes within its policies a **mapping of the areas** necessary to achieve the national contribution to the Union's 2030 renewable energy target including on the designation of renewables acceleration areas and dedicated infrastructure areas, but it does not provide details on the renewable energy technologies for which it plans to designate them. For the streamlining of administrative procedures and time limits for granting permits, the draft updated NECP does not include a reference to a contact point for project promoters, but includes recent measures to reduce the length of procedures and outlines future actions to further simplify and digitalise procedures, such as the introduction of the Single Environmental Opinion Further measures streamlining administrative procedures include introducing a system to increase the transparency of the connection process by displaying connectivity capacities. The plan has not elaborated on the additional human resources dedicated to permitting. The plan is not aligned with the revised RRP in which reforms in those areas are included.

3.2 Energy efficiency (including buildings) dimension

Energy savings are presented as a pillar of the draft updated NECP, with Czechia targeting to reduce final energy consumption by 430 ktoe per year until 2030 compared to the 2017-2019 average[9]. This corresponds to a **national contribution** of 20.2 Mtoe for final energy consumption and 28.8 Mtoe for primary energy consumption in 2030. Overall, the Czech targets are in line with the theoretical results of the EED recast Annex I formula.[10] However, the result of the Czech modelling exercise including all additional measures that influence the total energy consumption showed that Czechia can only achieve the level of

[9] The 2017-2019 average has been calculated based on the EED recast FEC definition, and the savings per year have been calculated for the period 2021-2030.

[10] According to Article 4(4) EED recast, a Member State shall ensure that its contribution in Mtoe is not more than 2.5% above what it would have been had it resulted from the EED recast Annex I formula.

2030 final energy consumption of 22.57 Mtoe, which is still not enough to reach the indicative contribution of 20.2 Mtoe. Czechia states that the gap between the indicative contribution and the modelled result will be further analysed to be filled in the final updated NECP.

The target for 2030 is set at a lower level of energy consumption as compared to the Czech targets for 2020 which is -35.0% for primary and –20.2% and final energy consumption respectively.[11] The target on reducing total final energy consumption of all public bodies is not described in the draft updated NECP, nor does it contain enough information regarding the measures planned, nor information on the exclusion of public transport or armed forces. The Czech draft updated NECP also falls short of the new requirements on the renovation of public buildings under Article 6 of the EED recast on the **exemplary role of public bodies' buildings**. The draft updated NECP states that due to the need to prepare a data base, detailed information on policies and measures related to the public sector could be updated for the final updated NECP.

Czechia revised its **cumulative energy savings target** to 15.98 Mtoe for the period 2021-2030 in line with the new requirements of the EED recast. The draft updated NECP provides well-structured information on what measures will be used to deliver the savings required post-2020 under Article 7 EED (Article 8 EED recast) on energy saving obligations. In implementing the saving obligation, Czechia opts for alternative policy measures. Most of the policies and measures under the energy efficiency dimension of the draft updated NECP are well described and include an estimation of energy savings, which added up seem to cover the energy savings target. However, details are missing for some measures for some measures. Czechia also indicates additional measures, for which the methodology and expected savings will be notified later.

The draft updated NECP presents in detail the planned measures to achieve the EU 2030 **energy efficiency targets**, as well as the expected savings for most of the measures. The Czech draft updated NECP relies mainly on existing and continuing measures, but there are also several new measures that were adopted or came into force after 2020. The new measures are, in several cases, upgrades of the previous measures but with new sources of funding and/or upgraded requirements and activities. Most of the new measures adopted after 2020 and the new planned measures to reach the higher 2030 target are well presented in the draft updated NECP, especially in the measure's fiches related to Article 8 EED recast in Annex I to the draft updated NECP. In some cases, it is not clear in what stage of the implementation the measures are, and such information should be added in the final updated NECP. Moreover, the Czech draft updated NECP does not provide information on the volume of investment needs specifically for energy efficiency. It is thus difficult to assess whether the available financial sources are sufficient to meet the 2030 energy efficiency targets.

There is no description of the application of **energy efficiency first principle**. The draft updated NECP mentions that policies and measures under the dimensions energy security and internal market shall reflect the 'energy efficiency first principle', which is also

[11] The comparison has been done with the 2020 targets as included in the final NECPs 2020 JRC assessments (44.3 Mtoe PEC, 25.3 Mtoe FEC).

planned to be reflected in the transformation of the heating system. However, no concrete measures implementing this principle are listed.

Regarding **energy poverty**, as part of the obligation under Article 8 on energy saving obligations of the EED recast, Czechia commits to set up instruments to ensure that energy efficiency improvements are also implemented for low-income groups. However, the draft updated NECP lacks quantification of the measures to tackle energy poverty. The draft updated NECP recalls the main milestones of the 2020 **long-term renovation strategy** and set their values to the most ambitious scenario. In particular, the milestones for the heat demand are set to 386, 292 and 246 MJ per m² per year respectively by 2030, 2040 and 2050.

According to the draft updated NECP, in the period 2021-2050, the progressive scenario, which is an "ideal scenario built on rapid and **deep renovations of the building stock**", assumes that most buildings (about 85%) will be deeply renovated as of 2025 or 2030. This increase in both depth and renovation rates is projected to lead to a reduction in final energy consumption in building sector of 17%, 34% and 44% respectively by 2030, 2040 and 2050 as compared to the baseline year 2013.

The main measures supporting this ambition are the **national schemes** 'new green savings (2021-2027)' and 'new green savings light' (designed for pensioners and vulnerable households), complemented by measures for public buildings renovation included in the Operational Programme (regional funds), the Czech RRP (component 2.2 on public sector) and Modernisation Fund. The expected contribution of each of the building-related measures or group of measures in terms of energy savings is not specifically quantified.

3.3 Energy security dimension

Fossil fuels still play an important role in the Czech energy mix, accounting for 71% of the gross available energy in 2021, according to the draft updated NECP. The share has been on a downward trend since 2000, however, where fossil fuels comprised 90% of the energy mix. The draft updated NECP predicts that the share of fossil fuels will decline to 65% by 2030. Czechia's energy import **dependency on third countries** is usually quite low due to national coal production and nuclear electricity and has been rather stable during the past decade (from 27% in 2013 to 30% in 2021[12]).

Even if important, **natural gas** plays a slightly less important role in the Czech energy system compared to the EU average, accounting for 18% of the energy mix and 9% of the electricity mix in 2021[13]. According to the 2015 Czech energy concept, which provides the outlook for the development of Czechia's energy sector for the upcoming 25 years, these shares were supposed to remain broadly stable or even to increase to 18-25% of the energy mix and to 5-15% of the electricity mix in 2040. The draft updated NECP specifies that this document is currently being updated, however, Czechia has some domestic production of natural gas, but it accounts for a marginal part of national consumption (around 2-3%) with the rest being imported. Traditionally, Czechia fully relied on Russia for its gas

[12] Eurostat data.
[13] Eurostat data.

imports (100% from 2018 to 2021[14]): however, since the outbreak of the Russian war of aggression against Ukraine, Russian gas flows through Bratri, Yamal and Nord Stream I pipelines completely stopped and Czechia replaced part of its Russian gas with gas imports from Norway and liquefied natural gas (LNG) imports from overseas.

The draft updated NECP identifies the main policies and measures to ensure security of supply in the gas sector, including: (i) **diversification of gas sources** and transport routes; (ii) the development of the transmission system to ensure system adequacy and security of gas supply ensuring long-term compliance with the N-1 criterion[15] and the 'S-1' criterion, (iii) the strict monitoring by gas traders of compliance with the security of supply standard for protected customers, (iv) measures to ensure sufficient storage capacity and efficient use of gas storage facilities; (v) emergency management of the gas system and prevention of an emergency; (vi) adaptation to changes in gas flows caused by reduced or zero natural gas supplies from Russia following the Russian war of aggression against Ukraine in February 2022; and (vii) preparing for the gradual emergence and development of the hydrogen economy in the Czechia.

As regards the diversification of gas supply, the draft updated NECP notably refers to the Czech-Polish bi-directional interconnection which, according to the draft updated NECP, will be prepared as 100% hydrogen-ready. The enhancement of **cross-border gas infrastructure**, e.g., the Gazelle gas pipeline and reverse gas flows at border delivery points, together with the liberalisation of the market has also contributed to security of gas supply in Czechia. The plan also refers to the development of sustainable gases, in particular hydrogen, for which the plan envisages imports through the 3 following corridors: North Africa & Southern Europe, Scandinavia-Baltic Corridor, and Eastern & South-Eastern Europe.

The plan sets a target of 300-400 MW **hydrogen electrolysers capacity** by 2030 (Section 3.1.3), while the production of biomethane is expected to reach close to 500 mcm by 2030 (against roughly 50 in 2023) and the one of biogas should exceed 1,400 mcm by 2030 (against approximately 1,300 mcm in 2023). The plan also recognises the importance of developing German gas infrastructure (both LNG terminals and transmission network) to strengthen Czech security of gas supply by providing access to new supply sources. Moreover, according to the 2015 Czech Energy Concept, the total capacity of gas storage facilities should be maintained at 35-40% of annual gas consumption and two months at 70% of peak daily consumption in winter should also be guaranteed. According to the draft updated NECP, quantification of the **security of gas supply** in accordance with N-1 formula should remain constantly high, but slightly decrease towards 2030, which that the margins will lightly drop. One of the key targets mentioned in the draft updated NECP is to maintain Czechia's transit role on a European scale.

Due to the Russian war of aggression against Ukraine, Czechia has managed to reduce its gas demand by 17% between August 2022 and August 2023, slightly above the -15%

[14] European Commission: https://economy-finance.ec.europa.eu/system/files/2023-05/CZ_SWD_2023_603_en.pdf.

[15] The N-1 criterion is a long-established operational standard to measure the resilience of a grid, and which means that the network must be able to withstand the (temporary) loss of the biggest asset on the network.

voluntary objective and slightly less than the EU27 average (-18%)[16]. Yet, the draft updated NECP does not describe the implemented **gas demand reduction measures**, nor does it explain how these are integrated in the medium-term planning towards 2030.

The main policies and measures of the draft updated NECP to ensure security of supply in the **electricity sector** are: (i) The development of the electricity grid to ensure system and generation adequacy ensuring long-term compliance with the N-1 criterion[17]; (ii) Generation adequacy measures; (iii) The development of an integrated electricity market; (iv) Measures stemming from European legislation; (v) Diversifying the electricity mix while developing sufficiently manageable emission-free sources (primarily nuclear power plants); (vi)) Emergency management of the system and prevention of an emergency.

Nuclear power will play a significant role in terms of diversifying the electricity mix, with an expectation for nuclear to replace the role of coal energy in the electricity mix, particularly after 2035. Increasing the share of nuclear energy is seen as a key prerequisite for achieving long-term climate commitments. Six nuclear reactors are currently in operation: 2 units at Temelín nuclear power plant (NPP) and 4 units at Dukovany NPP. The updated NECP foresees maintaining the existing installed nuclear capacity (4240 MWe) and further expanding the nuclear share in the national energy mix.

The plan aims to increase the share of nuclear energy in primary energy sources, from 15% in 2022 to 25-33% in 2040. It also aims to increase its share in gross electricity production from 37% in 2022 to 46-58% in 2040. There are plans for new nuclear builds to meet these targets, both by expanding the existing plants at Dukovany and Temelín and by developing small and modular reactors (SMRs), mainly at former sites of coal-fired power plants. In parallel, there are plans to further expand the use of nuclear power for district heating to České Budějovice. To support the implementation of the nuclear programme, Czechia is emphasising nuclear research, development and innovation. In particular, the draft updated NECP highlights: (i) the research on prospective GEN III+ and IV nuclear technologies; (ii) the research on lifetime extension of the existing reactor fleet, including enhancing nuclear safety and improving performance; (iii) the work addressing back-end of the fuel cycle - radioactive waste and spent fuel management; and (iv) the work on exploring options for H2 production using nuclear technologies.

Nuclear fuel for both of Czechia's domestic nuclear power plants is imported since the cessation of uranium mining in 2017. Czechia is diversifying its nuclear fuel supplies, with the operator of both NPPs having secured alternative nuclear fuel supplies with American Westinghouse. Temelín NPP has also concluded a nuclear fuel supply contract with French Framatome. In parallel, following national requirements, the operators have stocks of fuel stored on both sites. Despite the alternative nuclear fuel contracts, however, Russia currently remains a source of nuclear fuels for Czechia. Also, in the perspective for the construction of new nuclear power units, the draft updated NECP does not report further

[16] DG ENER Chief Economist Team based on ESTAT NRG_CB_GASM (sub-series IC_CAL_MG subtracted by TOS) in TJ (as of 29 September 2023, 11:00).

[17] The N-1 criterion is a long-established operational standard to measure the resilience of a grid, and which means that the network must be able to withstand the (temporary) loss of the biggest asset on the network.

details on measures taken to diversify and address long-term supply of nuclear materials, fuel, as well as spare parts, and services.

Despite the plans to further develop nuclear power, the phase-out of coal still raises the question of resource adequacy in the electricity system. Czechia is therefore also examining measures other than purely market-based measures. The considered instruments include a capacity mechanism or an incentive scheme for controlled exit.

Regarding **storage**, the plan mostly focuses on gas, with little details on plans or measures related to electricity storage. According to a study on storage commissioned by the European Commission, the current operational Czech power storage capacity is around 1 898 MW (mainly pumped hydro) and among the main barriers identified were the lack of a common definition of energy storage in the regulatory framework and some restrictions for the operation of standalone batteries[18].

Oil represented about 22% of the primary energy mix in 2021. Oil products are used mostly for transport. Czechia is a landlocked country dependent on the Transalpine pipeline (TAL) and the Druzhba pipeline for crude oil imports from the Russian federation (50%), Kazakhstan (18%) and Azerbaijan (16%) in 2021. Czechia has two refineries that can cover up to 80% of its own diesel and petrol consumption. The rest is imported primarily from Germany, Slovakia, Poland and Austria. In the last year, Czechia made efforts to bring back emergency oil stocks above 90 days of net imports as required by the EU oil stock directive. The draft updated NECP foresees a broadly stable share of oil products in primary energy sources around 20% until 2030. The oil chapter in the draft updated NECP does generally not appear up to date with few details on e.g., projections on future usage of oil products, the expected impact of the ongoing project to increase capacity of the TAL pipeline on diversifying from Russian oil, future use of the Druzhba pipeline and investments needed for the Litvinov refinery to be able to refine oil of non-Russian origin.

On **cybersecurity**, the draft updated NECP sets out the national acts in place and refers to the NIS Directive of 2016. However, on 16 January 2023, the Directive (EU) 2022/2555 (known as NIS2) entered into force replacing Directive (EU) 2016/1148. The current NIS2 Directive is not mentioned in the draft updated NECP. The plan also does not refer to the resilience of **critical raw materials supply chains** nor to the implications of **climate change** for energy security (in particular in relation with nuclear and hydropower). The protection of critical infrastructure is briefly addressed: Czechia is notably transposing the requirement of the CER directive into national law and is adopting a Critical Infrastructure Act.

The draft updated NECP adequately describes measures in the event of **security of supply crisis** for electricity and for gas. Czechia submitted its National Risk Assessment, Preventive Action Plan, Emergency Plan, as well as the Common Risk Assessments for

[18] This figure is derived from the database which accompanied the ENTEC study on Storage funded by the European Commission and published in November 2022, by taking into account only the "operational" facilities: https://op.europa.eu/en/publication-detail/-/publication/dfcaa78b-c217-11ed-8912-01aa75ed71a1/language-en?WT_mc_id=Searchresult&WT_ria_c=37085&WT_ria_f=3608&WT_ria_ev=search&WT_URL=https%3A//energy.ec.europa.eu/.

Ukraine, Belarus and Baltic Sea risk groups. At the time of writing, they are all being assessed by the European Commission. The Common Risk Assessment for the North-Eastern regional risk group, of which Czechia is a member, has still not been submitted despite the deadline of 1 October 2022, and no country has yet volunteered to coordinate the work.

3.4 Internal energy market dimension

As per the interconnections, the Czechia's State Energy Concept aims to maintain **import and export capacity** of the transmission system relative to the maximum load at a level of at least 30% and 35% respectively. Hence, this target is not directly comparable to the European target of 15% by 2030, as this target is expressed in relation to installed capacity. As the share of maximum load to installed capacity corresponds to around 50%, these targets should correspond. The current draft updated NECP put forward that the target values of 30% and 35% should be achieved without elaborating on the expected benefits of the key electricity infrastructure projects for the current identified congestion. In this regard, it is planned to strengthen the international profile with Slovakia while increasing cross-border transmission capacities. At the same time, the international profile with Austria, Germany and Poland is subject to further studies and developments.

While the plan indicates various initiatives to establish three **hydrogen corridors** within the European Hydrogen Backbone: Central European Hydrogen Corridor (CEHC), SunsHyne Corridor, and Czech-German Hydrogen Interconnector (CGHI), little detail is provided in terms of future supply availability and potential offtake.

On **gas infrastructure**, the plan indicates that the security of gas supply is well-ensured thanks to robust cross-border infrastructure.

In the field of gas, **regional cooperation** takes place, inter alia, on the preparation platform of the Gas Regional Investment Plan for Central and Eastern Europe (CEE GRIP). The draft updated NECP also mentions the meetings at the level of the Gas Coordination Group, where Member States discuss security, legislative and economic issues related to the EU gas sector.

The plan does not provide a clear overview of the main **cross-border infrastructure projects** needed to accelerate market integration and deployment of renewable energy in the region, for instance in terms of priority projects in electricity transmission, related investment needs, timelines, and their expected contribution at the regional level.

Moreover, the draft updated NECP refers to the National Action plan for Smart Grids Czechia While the draft updated NECP refers to the model of independent aggregator and creation of the Electricity Data Centre that should enable energy sharing and increase flexibility, it also explains that measures enabling the **demand-side flexibility** will be progressively transposed into national legislation. This shows delays in the transposition of the provisions of the Clean Energy Package. Overall, the draft updated NECP lacks details on policies and measures to incentivize demand response and provide consumers with necessary tools including concrete measures and their timeline. The draft updated NECP states that the development of flexibility management elements, including various forms of storage or demand side response is considered as one of the main national targets

also to be reflected in the Czechia's 2023 State Energy Concept and related Strategy Papers. Hence, one of the defined national objectives is to ensure **digitalisation** and market opening for energy support services. A national smart network action plan for the years 2019-2030 was approved, resulting in 20 projects that deal with support, implementation and pilot projects.

The draft updated NECP states that **energy poverty** in Czechia has been gradually decreasing since 2005 and indicates that tenants in private buildings are particularly affected; nevertheless, an analysis of the energy crisis-period and its impact on households is missing. It further explains that there is currently no definition of energy poverty, although work on methodology defining a **vulnerable consumer** or a consumer suffering from energy poverty is ongoing. The issue of energy poverty is currently partially addressed by social policy and, to some extent, by consumer protection policy. However, policies or measures specifically aiming to address energy poverty in a structural manner by setting national objectives and a timeline are missing. The draft updated NECP mentions that energy poverty will be defined during the transposition of the EED recast, therefore updates regarding energy poverty are expected vis-a-vis the final plan.

Overall, the description of the current situation as well as possible measures to address energy poverty is not sufficiently detailed and does not explore synergies with measures to develop demand response, facilitate consumers' engagement in renewables, accelerate building renovation and energy savings in a targeted manner to have direct effect on households in energy poverty and empower vulnerable consumers.

3.5 Research, innovation, competitiveness and skills dimension

3.5.1 Research and innovation

The Czech draft updated NECP does not report on the **national targets** and spendings for R&I in specific clean energy technologies. The plan declares that it was not possible for Czechia to quantify the exact level of planned public R&I funding for low-carbon technologies.

As regards the 2030 R&I objectives, several **strategic programmes** and policy documents are listed, addressing clean energy R&I such as the 2015 Czech *State Energy Concept* (SEK CR), the *National Research and Innovation Strategy for Smart Specialisation* covering 2021-2027 or the *National Priorities for Oriented Research, Experimental Development and Innovation.* The plan puts forward the *national R&D&I policy of Czechia 2021+*, which is the overarching strategic document providing a framework for up to 2030. Finally, Czechia's *Innovation Strategy 2019-2030,* should help Czechia move towards being one of Europe's most innovative countries over the next 12 years. However, the programmes and policy documents presented in the draft updated NECP describe only general objectives, and a clear timeline for implementation are missing.

In addition, the draft updated NECP describes the *THÉTA 1 (2018-2025) programme* and its successor *THÉTA 2* as one of the main instruments for supporting projects with a high potential for application in the energy sector. Both programmes build on the activities and priorities of the SET Plan, although it is not described which SET Plan priorities are

relevant for the country. The *THÉTA* programmes also give some information on the share of **public and private fundings**, but do not specify in which clean energy technologies.

The *THÉTA 2* programme intends to reflect the future R&I needs of the energy sector. Its total expenditure for implementation is forecast at CZK 10 621.7 million (EUR 433M), of which CZK 7,410 million (EUR 302M) will be financed from the State budget for R&I and CZK 3 211.7 million (EUR 131M) from other sources. Support in the programme's 'busiest' years will be around 1 billion CZK (EUR 40M). This corresponds to about an 85% increase in the allocation of public funds compared to *THÉTA 1*, which reflects the country's objective to deliver on an ambitious decarbonisation goal for 2050. However, in the draft updated NECP, it is not clear when the *THÉTA 2* programme will start and for how long it will be active.

The draft NECP does not provide information on the country's concrete ambition, targets and timeline with regard R&I funding for 2030 and 2050, nor does it mark the green research share of the country's total R&I spendings and indicating the split between public and private funds. Czechia does not have specific national targets for the deployment of low-carbon technologies by 2050. The draft updated NECP indicates that the introduction of specific technologies should be mainly market driven. The plan does not explain R&I efforts related to climate adaptation, carbon sinks, nature restoration and air quality.

The draft updated NECP refers to cooperation between Czechia and the other EU Member States under the SET Plan and the European Energy Research Alliance but does not identify cooperation areas of particular interest to Czechia's or the specific energy technologies where enhanced cooperation R&I is sought after. Horizon Europe participation is mentioned. The plan also describes the potential for international cooperation through Czechia's participation in the IEA's *Technology Collaboration Programmes* (Energy in Buildings and Municipalities Programme (ECB); Fluidised bed conversion (FBC); Gender in energy (C3E/ Equality); and Heat pumps programme).

3.5.2 Competitiveness

The draft updated NECP reports that Czechia's ambition in the area of competitiveness is summarised in the strategic energy objectives laid out in its 2015 **State Energy Concept,** competitiveness being one of the top three objectives.

The plan highlights the role of R&D&I **competence centres** in increasing the country's competitiveness. Competence centres are to provide recommendations to policymaking in the sense of "research for policy" to tackle the challenges faced by the manufacturing sector (such as steel, chemical, ceramic, cement, glass, paper, brick and lime), including the maximisation of support for the development and application of all technologies, contributes to the achievement of climate and energy objectives, while safeguarding the competitiveness. Czechia reports on the preparation of its National Economic Strategy 2030, including the National Investment Plan, defining Czechia's main economic objectives by 2030 based on ten pillars (industry and energy, innovation and raw materials among others), as well as developing its **industrial policy** for the period 2021-2030, with a view to 2050.

The draft updated NECP does not specify the timeline of these strategies and plans. Moreover, the plan does not does not provide enough information about the investments already implemented or foreseen in the near future for the manufacturing of key components for net-zero technologies and for the deployment of net-zero technologies in the different industrial ecosystems and, how it will ensure the resilience of its supply chains to reach its energy and climate targets if there is not enough domestic production of these components or equipment.

More specifically for **clean energy technologies**, the *Technology and Competitiveness Operational Programme* under the Cohesion Funds 2021-2027, covers the strategic objectives of among others: promoting energy efficiency and reducing GHG emissions (13 billion CZK), promotion of energy from renewable sources (6.7 billion CZK), development of smart energy systems, smart grids and storage (7.6 billion CZK). Also in the THETA programme's sub-programme 2, the focus is on energy technologies for competitiveness.

Czechia provided partial information related to the **Digitalisation** of Energy System EU Action Plan. The plan includes measures that enable digitalisation of the energy system through, for instance, the Czech State *Energy Concept*, which lists ensuring digitalisation and market opening for energy support services among the Strategic Competitiveness Objectives, with a focus on flexibility services and smart meters. Another programme mentioned is the *Operational Programme for Entrepreneurship and Innovation for Competitiveness,* where one priority is dedicated to upgrade the transmission and distribution network in order to increase their efficiency, including the implementation of smart grid elements. However, the draft updated NECP does not set quantitative targets on the digitalisation of its energy system.

3.5.3 Skills

The draft updated NECP identifies **skill shortages** for the development of strategic sectors. Czechia acknowledges that the education system needs to better equip graduates with the competences and skills (e.g., digitalisation) needed to perform certain professions in the context of a changing environment. The plan does not, however, present policies or measures to overcome this identified bottleneck and boost European competitiveness in clean energy technologies, equipment and components (skills development required for the clean energy transition, connecting for instance with relevant European Year of Skills initiatives, Pact for Skills large scale partnerships, New Innovation Agenda or even Green Skills component in the RRP.

4 JUST TRANSITION

Just transition is addressed in a limited manner in the draft updated plan. It provides only limited qualitative and quantitative analysis of the employment, skills and social impacts of the energy and climate transition, including distributional impacts on vulnerable groups. In addition, the draft updated plan does not provide sufficient information for the preparation of the Social Climate Plans, as assessed in Chapter 7.

Overall, the draft updated NECP lacks a more comprehensive nation-wide strategy for ensuring a just transition beyond what is planned in the coal regions. Measures supporting access and preservation of employment and affordable and inclusive education, training and life-long learning are only mentioned in the context of new job opportunities and support for workers who will be negatively affected by the transition in coal regions supported through the Just Transition Fund (JTF). However, as assessed in Chapter 3, the plan includes only limited description of social measures to support the most vulnerable groups but mentions future work linked to energy poverty. Finally, the draft updated plan does not detail the resources specifically devoted to supporting the just transition.

5 REGIONAL COOPERATION

Overall, the draft updated NECP does not comprehensively cover regional cooperation. While Czechia indicates several fora and initiatives relevant for regional cooperation, the plan does not include much detail or concrete examples on joint priority actions or achievements with neighbouring Member States. The draft updated NECP does not provide a clear overview on future priority initiatives through regional platforms to step up cooperation between Czechia and its regional partners to achieve energy policy objectives. While the Visegrad Forum is mentioned, the plan does not specify how the V4 format is organised or how it helps Czechia strengthen its regional cooperation beyond for instance consultations on parts of the revised NECP.

Czechia is not a member of any of the high-level groups[19] set up by the European Commission to provide political support and direction for infrastructure and regulatory development. As seen in the case of other Member States, the High-Level Groups can strengthen cooperation in specific regional configurations by providing a structured format to undertake joint initiatives, underpinned by a focus on projects, for example in an emerging collaboration on hydrogen infrastructure development or deployment of renewables in specific regions and related grid enhancement.

In the area of renewables, the draft updated NECP does not include a measure or initiative under any of the available cooperation mechanisms, reflecting instead Czechia's preferred bottom-up approach. Czechia did not sign any solidarity agreement with its neighbours for the security of gas supply of the four required (with Poland, Slovakia, Germany and Austria), and the draft updated NECP does not envisage any progress in the situation.

6 INTERNAL COHERENCE AND POLICY INTERACTIONS WITHIN THE DRAFT UPDATED NECP

Coherence and consistency across dimensions are difficult to assess as relevant information is missing. Consistency seems to exist within the carbon reduction dimension, as coal will be replaced mainly by nuclear power and to some extent by renewable energy

[19] Four high level groups have been set up by the European Commission to provide strategic steering and policy guidance on regulatory and infrastructure development and to monitor progress of projects of common interest in priority regions. They include: The North Seas Energy Cooperation (NSEC); Interconnections for South-West Europe; Baltic Energy Market Interconnection Plan (BEMIP); Central and South Eastern Europe energy connectivity (CESEC).

sources. However, Czechia's State Energy Concept was approved in 2015 and is currently being updated. Just transition efforts are made in coal region by economic restructuring. Energy efficiency plays a role in modernisation of buildings, but the energy first principle is not an overarching theme that spans over multiple dimensions. The draft updated NECP lacks the analysis of consistency of policies and measures in each dimension and a quantitative analysis of interactions of certain objectives.

7 STRATEGIC ALIGNMENT WITH OTHER PLANNING INSTRUMENTS

Czechia formally submitted a modified RRP and REPowerEU chapter on 30 June 2023. The European Commission provided a positive assessment on 26 September 2023 and Council approved it on 16 October 2023. Czechia's REPowerEU chapter consists of fifteen new reforms and nine new investments, focusing on grid modernisation and digitalisation, energy communities, electricity sharing, energy storage, aggregation and flexibility, the designation of acceleration areas for renewable energy generation and the reform on the simplification of the single as well as investments for the construction of new photovoltaic installation , as well as reforms and investments designed to support the uptake of zero-emission road vehicles, recharging and refuelling infrastructure, and rail.

The draft updated NECP incorporates only partially the main **reforms and investments included in the RRP**, such as by mostly referencing the New Green Savings and New Green Savings 2030 programmes and energy communities, while not covering the impact of upcoming important comprehensive energy reforms such as Lex Res II. In some cases, the consistency between the draft updated NECP and RRP is only vague and not specific. The draft updated plan does not always clearly indicate whether the measure is fully or partially part of the RRP including its REPowerEU chapter. That can be observed, in particular, in the case in which a measure or policy is financed through different sources of funding. Moreover, the adopted revision of the plan is not properly reflected in the draft NECP.

The draft updated plan is consistent with the Territorial Just Transition Plan (TJTP) coal phase out commitments. However, it addresses superficially the links to the adopted TJTP and does not clearly explain how the Just Transition Fund fits into its objectives and investment needs.

The plan provides inadequate analytical basis for the preparation of the Social Climate Plan (SCP) that will address the impacts of the new emissions trading system for fuel combustion in buildings, road transport and additional sectors (ETS2) on vulnerable households, transport users and micro enterprises. The plan acknowledges the availability of Social Climate Fund (SCF) funding for temporary support to vulnerable groups and measures in energy efficiency and transport. However, it stops short of any details regarding the process to establish and draft the SCP. The plan does not outline reforms and policy framework for the future SCP. Thus, it does not explain how the SCP builds on the NECP update and how the consistency between the two plans will be ensured.

The draft updated NECP mentions the interactions and co-benefits between energy and climate and clean air objectives, as well as challenges in the domestic sector including from biomass combustion. As part of the projections provided under the plan, there are

projections for the main air pollutants for which Directive 2016/2284 sets emission reduction commitments. The draft plan establishes a link between the NECP and the **national air pollution control programme** (NAPCP), which is being updated in parallel and based on the same input assumptions. In the draft updated plan Czechia notes that the CAP strategic plan will contribute to reducing emissions and increasing removals in the agricultural and LULUCF sectors. However, it does not provide the quantification of the climate impacts of measures currently included in the **CAP Strategic Plan** (CSP), thus the plan does not explain whether the CSP is in line with the new LULUCF and ESR targets and whether additional measures are necessary.

Compared to the **National Adaptation Strategy**, the plan is less detailed and less ambitious on the respective actions.

The draft updated NECP of Czechia is broadly aligned with the energy-related 2022 and 2023 country-specific recommendations. However, as the draft plan does not properly reflect the revised recovery and resilience plan, Czechia addresses only a subset of the challenges identified related to energy policy and the green transition. The updated draft NECP refers to policy measures to streamline permitting procedures, to reduce reliance on fossil fuels and to incentivise deep renovations; nevertheless, the draft plan does not present policy measures to increase capacity building and skills or measure to enhance the flexibility and resilience of the electricity system.

8 FINANCING THE ENERGY AND CLIMATE TRANSITIONS

8.1 Investment needs

The draft updated NECP does not include information on the expected investment needs to implement the planned policies and measures for each of the five dimensions. Employing a top-down economy wide approach with a bottom-up methodology considering all quantifiable measures and amounts that include private and public investment, as well as other public expenditure such as subsidies, would provide greater clarity on this**.**

8.2 Funding sources

The draft updated NECP does not provide a clear overview of the main sources of financing to implement the planned key policies and measures. A large variety of EU sources are to be used including the RRF, European Regional Development Fund and Cohesion Funds, JTF, CF, Innovation Fund, ETS revenues and the Modernisation Fund. The information on the funding available from the national budget is limited to two measures (EFEKT and Panel 2013+ programmes). The funding sources mentioned are not associated to the planned policies and measures, therefore it is unclear how the funding would be used for their implementation. The draft plan lacks a description how public instruments are expected to further mobilise private investment.

The contribution of the RRF is not well reflected in the draft updated NECP. There is no quantitative indication of the contribution of the RRF to the expected public financing needs to implement the policies and measures of the draft updated NECP.

There is no overview table gathering all the budgetary information of the different policies and measures that would allow identifying whether there is an investment gap.

9 ROBUSTNESS OF THE ANALYTICAL BASIS OF THE DRAFT UPDATED NECP

The draft updated NECP is based on robust quantitative analyses and describes some historical trends and assumptions used in the analysis. Historical and key macroeconomic assumptions such as GDP and population are based on Czech Statistical Office statistics, but technology cost assumptions are not described. Historical and projected key energy indicators such as final/primary energy consumption and renewable energy shares are presented from several sources, including Eurostat, the Ministry of Industry and Trade, the Ministry of Transport and the Czech Statistical Office. As some of the assumptions and analyses are based on the 2020 National Plan (with data from 2016/2017), the draft updated NECP indicates that the modelling assumptions and projections will be updated, as appropriate, for the updated final NECP, by June 2024. The macroeconomic impact simulations have been done in Spring 2023 and updated with the Ministry of Finance macroeconomic forecast from August 2023. A further updated for the final NECP is envisaged.

The draft NECP update describes both a With Existing Measures (WEM) and With Additional Measures (WAM) scenarios with detailed projections for the relevant sectors of the economy, including industry, the energy system and transport and covering the period until 2030 and, for a few indicators, until 2040. Regarding GHG emissions, results from both scenarios are remarkably close (e.g., Figure 48, Tables 59 and 60 of the updated NECP). The analysis is based on several models, including TIMES, PLEXOS, E3ME and DASMOD. The new ETS for buildings, road transport and additional sectors (ETS 2) has been considered in the projection scenarios.

In the impact assessment of planned policies and measures, only results from a few research projects are listed, for instance, the impact of the Fit-for-55 package on the Czechia's economy. It is unclear if other policies and measures are included in the assessment. Potential macroeconomic impacts on GDP of different WAM scenarios are presented using the E3ME model, but the results are not sufficiently explained. While the model appears to have a complex output including GDP transmission channels, a detailed sectorial impact on employment, and distributional effects, these are not sufficiently described in the text. An overview of the impact on public finances is also missing, including the direct impact of investments and their sources of financing which are not detailed sufficiently in the NECP.