



Brussels, 18.12.2023
SWD(2023) 918 final

COMMISSION STAFF WORKING DOCUMENT

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

Accompanying the document

COMMISSION RECOMMENDATION

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

{C(2023) 9608 final}

Contents

| | | |
|-------|--|----|
| 1 | SUMMARY | 3 |
| 1.1 | Overview of key objectives, targets and contributions in the draft updated NECP 3 | |
| 1.2 | Summary of the main observations | 4 |
| 2 | PREPARATION AND SUBMISSION OF THE DRAFT UPDATED NECP | 7 |
| 2.1 | Process and structure | 7 |
| 2.2 | Public consultation..... | 8 |
| 2.3 | Regional consultations for preparing the draft updated NECP..... | 8 |
| 3 | ASSESSMENT OF THE AMBITION OF OBJECTIVES, TARGETS AND CONTRIBUTIONS AND ADEQUACY OF SUPPORTING POLICIES AND MEASURES | 8 |
| 3.1 | Decarbonisation dimension..... | 8 |
| 3.1.1 | <i>Greenhouse gas emissions, removals and storage</i> | 8 |
| 3.1.2 | <i>Adaptation</i> | 12 |
| 3.1.3 | <i>Renewable energy</i> | 13 |
| 3.2 | Energy efficiency (including buildings) dimension..... | 16 |
| 3.3 | Energy security dimension..... | 18 |
| 3.4 | Internal energy market dimension | 20 |
| 3.5 | Research, innovation, competitiveness and skills dimension..... | 21 |
| 3.5.1 | <i>Research and innovation</i> | 21 |
| 3.5.2 | <i>Competitiveness</i> | 22 |
| 3.5.3 | <i>Skills</i> | 22 |
| 4 | JUST TRANSITION..... | 23 |
| 5 | REGIONAL COOPERATION | 23 |
| 6 | INTERNAL COHERENCE AND POLICY INTERACTIONS WITHIN THE DRAFT UPDATED NECP..... | 24 |
| 7 | STRATEGIC ALIGNMENT WITH OTHER PLANNING INSTRUMENTS | 24 |
| 8 | FINANCING THE ENERGY AND CLIMATE TRANSITIONS..... | 26 |
| 8.1 | Investment needs..... | 26 |
| 8.2 | Funding sources | 26 |
| 9 | ROBUSTNESS OF THE ANALYTICAL BASIS OF THE DRAFT UPDATED NECP | 26 |




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.

Lithuania’s draft updated national energy and climate plan (‘the draft updated NECP’ or ‘the plan’), submitted on 26 July 2023, partially takes into account this new geopolitical and legislative framework.

Table 1: Summary of key objectives, targets and contributions of Lithuania’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 (%) | | 2021: +9.6% 2022: +8.8% ¹ | -21% | NECP: -20.9% |
| | Binding target for net GHG removals under the Regulation on Land Use, Land Use Change and Forestry (LULUCF) | | Reported net removals of -6.09 Mt CO ₂ eq. in 2021 and reported approximated net removals of -6.14 Mt CO ₂ eq. in 2022 | - 661 kt CO ₂ eq. (additional removal target) - 7 084 kt CO ₂ eq. (total net removals) | Insufficient ambition, not meeting the target |
|  | National target/contribution for renewable energy: Share of energy from renewable sources in gross final consumption of energy (%) | 26.8% (SHARES) 23% (target) | 28.2% | 55% | LT contribution of 55% is significantly above the 49% required according to the formula set out in Annex II of the Governance Regulation |
|  | National contribution for energy efficiency | | | | |
| | Primary energy consumption | 6.5 Mtoe | 6.63 Mtoe | 5 200 ktoe | LT primary energy consumption |

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.

| | | | | | |
|---|--|----------|-----------|------------------|--|
| | | | | | contribution is 5 200. EED recast Annex I formula results: 5157 ktoe |
| | Final energy consumption | 4.3 Mtoe | 5.66 Mtoe | 4 200 ktoe | LT final energy consumption contribution is 4 200 ktoe. EED recast Annex I formula results: 4 248 ktoe |
|  | Level of electricity interconnectivity (%) | 77% | 81.4% | 15% ² | |

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

1.2 Summary of the main observations³

The draft updated NECP refers to the revised energy and climate targets recently agreed under the **'Fit for 55'** package and the **REPowerEU** plan. Overall, the plan outlines well how these targets will be effectively reached. However, across these different dimensions, policies and measures are not always properly described in terms of their scope, timing and expected impacts. Moreover, actions are lacking in some dimensions.

Regarding the **reduction of greenhouse gas emissions under the Effort Sharing Regulation (ESR)**, the plan provides emission projections demonstrating that with additional policies and measures, Lithuania falls slightly short of its national greenhouse gas target of -21% in 2030 compared to 2005 levels. According to Lithuania's projections, there is gap of 0.1 percentage points, highlighting the need for more ambitious climate action.

On **Land Use Change and Forestry (LULUCF)**⁴, the draft updated projections in the plan indicate that Lithuania will fall slightly short of the 2030 ambition, highlighting the need for enhanced climate action. The draft does not provide a clear implementation timeframe for 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 does not identify annual CO₂ emissions that can be captured, nor geological CO₂ storage capacity. No details on

² Calculated by the European Commission based on the ENTSO-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 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).

CO₂ transport are provided. Two cross-border transport projects that have applied for PCI status are referenced but more information could be provided.

The draft updated NECP reflects progress towards **international commitments** under the Paris Agreement. While Lithuania has already phased out coal use in the power sector and several fossil fuel subsidies will be phased out by 2026, it does not provide information on how and when the remaining ones will be phased 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. 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 Lithuania'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. For instance, there is no reference to the resilience of energy systems or to innovative approaches such as insurance policies and fiscal measures addressing the climate protection gap.

On **renewable energy**, Lithuania's draft updated NECP presents a contribution to the overall EU target of 55% of renewables in gross final energy consumption by 2030. This is significantly above the share of 49% resulting from the formula in Annex II of the Regulation (EU) 2018/1999 on the Governance Regulation of the Energy Union and Climate Action (the 'Governance Regulation'). The draft updated NECP generally includes indicative trajectories for renewables in the electricity, transport, heating and cooling sectors largely taking into account 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'). However, the draft updated NECP does not include trajectories for the share of renewable energy in industry and buildings. The plan provides additional policies and measures to achieve the increased ambition and to ensure a full implementation of existing and planned policies and measures. A comprehensive overview of policies and measures has been included.

On **energy efficiency**, Lithuania's draft updated NECP is very comprehensive, ambitious and detailed. The draft updated NECP sets ambitious targets for 2030 on energy efficiency which are in line with the results of the formula set out in Annex I of the Directive EU 2023/1791 on energy efficiency and amending Regulation (EU) 2023/955 (recast) ('EED recast')⁵. However, the projected contributions of energy savings in the plan do not appear to reach the targets under both the with-existing-measures (WEM) and with-additional-measures (WAM) scenarios.

The draft updated NECP presents the planned measures to achieve the 2030 energy efficiency targets in detail. In addition, the draft updated NECP specifically includes measures reflecting the 'energy efficiency first' principle.

On **buildings**, the draft updated NECP does not set out more ambitious targets than those included in the Lithuanian 2020 long-term renovation strategy (LTRS) but refers to some of the LTRS's elements. Some inconsistencies in the baseline values of Lithuania's 2020 primary energy consumption (PEC) and final energy consumption (FEC) have repercussions for the included calculations for targets and milestones in the building sector. However, the plan presents some policies and measures from Lithuania's 2020 LTRS. It is not clear how the projected increase in the FEC of individual households by 2030 and

2040 is compatible with the energy savings projected by the policies and measures in the building sector. Furthermore, there seem to be inconsistent values and calculations of energy savings in relation to buildings throughout the plan.

On **energy security**, Lithuania's draft updated NECP convincingly sets out targets and measures to increase Lithuania's security of supply. In the **gas sector**, the European Commission takes particular note of Lithuania's project to acquire the Floating Storage Regasification Unit (FSRU) operating in Klaipeda by the end of 2024. This would support Lithuania's diversification of energy supply. In the **electricity sector** the region's priority to connect to the central Europe synchronous area, planned for February 2025, is positively noted. The plan does not, however, contain a roadmap nor specific targets for energy storage. The Lithuanian oil sector appears robust and plays an important role for the security of oil supply of its neighbour countries as a net exporter. However, the plan does not assess the adequacy of the current oil infrastructure in view of the expected oil demand and the increased use of biofuels in Lithuania and in neighbouring countries.

On the **internal energy market** dimension, the draft updated NECP outlines the completion of Lithuania's integration with the EU internal energy market as a priority aiming at increased energy security and affordability and speeding up the clean energy transition. While the draft updated NECP identifies some ongoing key infrastructure projects in Lithuania, it does not specify concrete measures in this regard. The draft updated NECP includes measures to enhance consumer empowerment as well as demand response and flexibility across the energy system, but it does not include detailed objectives and targets.

The plan presents objectives related to **energy poverty** as well as planned measures to achieve them. The indicators used to measure energy poverty are not up to date, however. Few links appear to be explored between the planned measures to alleviate energy poverty and other dimensions such as energy efficiency.

On the **research, innovation, competitiveness and skills** dimension, Lithuania's draft updated NECP presents a broad range of strategic programmes and measures that can enhance the research, innovation, and competitiveness in the clean energy sector in line with the objectives of the European Green Deal. However, the draft updated NECP does not systematically define quantified targets across the various domains. For instance, the draft updated NECP does not include: (i) plans for public research and innovation (R&I) investment in clean energy by 2030, (ii) plans for investments in capacity increases in clean energy technology manufacturing, or (iii) the need for re- or upskilling in various clean energy sectors.

Just transition is partially addressed in the draft updated NECP. Overall, there is some analysis of social, employment and skills impacts of the climate and energy transition, including distributional ones, but the plan lacks quantifiable targets and objectives. Social policies and measures addressing the most vulnerable groups are better developed than those related to employment. Education and upskilling policies and measures are not described in much detail. In addition, the draft updated plan does not detail the resources dedicated for supporting a just transition. Finally, the draft plan does not provide sufficient information for the preparation of the Social Climate Plan or on how the consistency of the two plans would be ensured.

The draft updated NECP generally **appears consistent with Lithuania's RRP** which is mentioned extensively in the text. Lithuania's amended RRP including the new chapter on

REPowerEU was submitted on 30 June 2023. Lithuania's draft updated NECP reflects the **2023 European Semester Country Specific Recommendations**, particularly the challenges to be addressed by Lithuania.

The draft updated NECP includes precise information on the expected **investment needs** to implement the existing and planned policies and measures by sector and policy area and distinguishes between the use of public and private funds. While the plan includes an overview of **main sources of financing** by policy area and by existing instruments, it does not include a breakdown by policy action.

It is not possible to evaluate the robustness of the **analytical basis** underpinning the draft updated NECP as a description is not provided. In particular, the draft updated NECP does not include a description of the type of modelling tools, nor the main assumptions and parameters used for both the WEM and WAM scenarios. Moreover, the macro-economic assessment is not sufficiently developed as the methodology lacks robustness and detail.

2 PREPARATION AND SUBMISSION OF THE DRAFT UPDATED NECP

2.1 Process and structure

The Lithuanian draft updated NECP was submitted to the Commission after the legal deadline on 26 July 2023. The plan is generally well developed and follows the structure provided in the Annex I template. It covers all five dimensions of the Energy Union, with objectives, targets and contributions for each one. These are backed by policies and measures and underpinned by an analytical basis, including an impact assessment. It is unclear if a Strategic Environmental Assessment (SEA) was carried out.

The draft updated NECP also provides evidence that, in line with the whole-of-government approach, Lithuania engaged with thematic working groups across all the ministries involved. Lithuania also worked with all relevant authorities and agencies to update the draft plan. It took into account synergies and trade-offs across different portfolios.

The draft updated NECP includes local and regional aspects of energy and climate change policies. It highlights the importance of municipalities in achieving objectives, in particular mitigation, adaptation and energy poverty objectives. The plan lists a set of actions for different sectors that are focused on local and regional levels and/or have local authorities as one of the responsible bodies. The plan stresses the importance of cross-cutting climate change management policies and encourages municipalities to contribute to national targets, share good practices and raise public awareness. Although it appears that local authorities were part of the consultation process (along with other stakeholders), it is not fully clear to what extent local authorities' views were taken into account in developing the draft updated NECP.

Lithuania has established a multilevel energy and climate dialogue in the format of numerous meetings of five task forces established on decarbonisation and three working groups established on energy. The respective sections of draft updated NECP were discussed by these working groups. Representatives of a wide range of stakeholders submitted 600 measures which were assessed based on efficiency and compliance with the strategic targets and the selected ones were included in the draft updated NECP. A final conference on the energy part for the draft updated NECP was held in March 2022 where results of analysis of proposed measures were presented. The final conference on

decarbonisation was held in April 2023. At this conference, recommendations of the Organisation of Economic Co-operation and Development (OECD) on the transition of Lithuanian economic sectors to climate neutral economy until 2050 were presented.

2.2 Public consultation

The public participation procedure Lithuania outlines in the plan ensured early public participation before decisions were taken and throughout the decision-making process. A wide range of interest groups were identified and encouraged to take part (including social partners) as well as members of the public. The country put in place suitable communication channels and mechanisms to notify and reach the public about participating in the process to update the NECP. The time frame for the public to prepare and participate effectively was sufficient. The necessary information on the NECP's key objectives, targets and contributions was made available. The public and stakeholders were informed of the regulatory context for the review and the decision-making procedure to be followed for the update. The draft updated NECP contains a brief summary of how the public's views were considered and addressed, or why they were not.

2.3 Regional consultations for preparing the draft updated NECP

Lithuania has planned consultations with other Member States in the autumn of 2023. The outcomes of these should be presented in the final plan.

Lithuania regularly consults Member States in the region in established fora, including under the Baltic Council of Ministers. The main outcome is summarised in the draft updated NECP, explaining the consultations' scope and procedural aspects.

The collaboration mainly focused on the following topics: the Baltic Energy Market Interconnection Plan (BEMIP) offshore wind and the Lithuanian-Polish gas interconnection project. Joint offshore wind energy non-binding sea-basin goals until 2050 were agreed in 2023 by Estonia, Finland, Germany, Latvia, Lithuania and Sweden.

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

The draft updated NECP confirms Lithuania's commitment to achieve climate neutrality by 2050. The draft updated NECP does not include concrete pathways to 2050. WEM and WAM projections are performed with a time horizon of 2040. The projections submitted in March 2023 under Article 18 of the Governance Regulation show net GHG emissions (i.e., including LULUCF and excluding international aviation) of 9 million tonnes of CO₂ equivalent (CO₂ eq.) by 2050 considering existing measures, and of 7

million tonnes of CO₂ equivalent with additional measures. This is equivalent to projected reductions in 2050, compared to 1990, of 79% and 83%, respectively. In the most recent years, however, net GHG emissions in Lithuania have been rising, mainly due to a significant decline in the LULUCF sink and increased emissions in the transport and buildings sectors. Despite the commitment to achieve climate neutrality by 2050, the information provided in the draft updated NECP does not allow for a full assessment as to whether progress by Lithuania is consistent with the achievement of the EU climate-neutrality objective. However, based on all the available information, progress by Lithuania is likely to be consistent with the achievement of the EU climate-neutrality objective.

The draft updated NECP broadly reflects the required ambition under the **ESR**, as the additional policies and measures in the plan collectively almost suffice to reach the effort sharing sector obligations. The ESR sets Lithuania’s 2030 ESR emissions reduction target to -21% by 2030, compared to 2005 levels. The draft updated NECP projects ESR emissions to be below this target with existing measures (-14.5%), but with additional planned measures the ESR target is almost reached (-20.9%). The plan states that targets will be revised in 2025. In 2021, Lithuania’s ESR emissions were less than its available Annual Emission Allocations (AEAs) by 1.8 Mt CO₂ eq.

Member States have flexibilities under the ESR to comply with their targets. No specific use of ESR flexibilities is mentioned by Lithuania. To assess whether Member States comply, the use of saved AEAs from previous years is taken into account.

Table 2: ESR target and projections in Lithuania’s draft updated NECP

| ESR target and projections⁵ | | | | | |
|---|---------------------|--|---|-----------------------------|-----------------------------|
| | 2030 target* | 2021 performance (inventory data) * | 2022 performance (approximated data) * | 2030 WEM projection* | 2030 WAM projection* |
| Lithuania | -21% | 9.6% | 8.8% | -14.5% | -20.9% |
| 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**. This concerns, in particular, the 2030 national target requiring Lithuania to deliver an additional 661 kt CO₂ eq. of net removals to reach a total value of -7 084 kt CO₂ eq. in 2030. According to the projections submitted in the draft updated NECP, Lithuania will achieve -6 706 kt CO₂ eq. by 2030. This is 387 kt CO₂ eq. short of the 2030 value above, highlighting the need for more ambitious climate action.

The Lithuanian draft updated NECP does not clearly set out a pathway to increase the land sector’s contribution to the EU’s overall higher climate target.

⁵ 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).

Lithuania identifies several relevant EU funds and national policies and measures largely targeting the forestry sector. However, the country does not make a link between the increased ambition of the LULUCF sector and funding available under the common agricultural policy (CAP). Even in the WAM scenario, removals are projected to slightly increase until 2033, followed by stagnation or even a slight decrease by 2040.

Given that the two major uses of land in Lithuania are for forests and crops, the country has rightly placed a significant focus on policies and measures in these areas. Several additional policy measures to be implemented are listed, such as restoring wetlands and promoting carbon farming and most of them are quantified. However, the draft updated NECP does not provide an implementation time frame or indicate the source of funding.

Furthermore, Lithuania's draft updated NECP does not provide information on the current status of progress to be made in ensuring that these improvements will be implemented. This includes improvements to higher-tier levels and geographically explicit datasets, in line with Regulation (EU) 2018/1999 on monitoring, reporting and verification.

Overall, Lithuania's draft updated NECP does not clearly present how its policies and measures for the LULUCF sector will contribute to the country's long-term transition to climate neutrality by 2050. However, the plan includes a large set of restoration measures, in climate-relevant ecosystems like peatlands, wetlands, extensive grassland or forests, as well as actions on soils and agroforestry.

The draft updated NECP includes measures aligned with the provisions of the new **Alternative Fuels Infrastructure Regulation**. A national law introduced binding green public procurement targets in 2021 for the acquisition of new vehicles and transport services to reorient public transport fleets and encourage public bodies to choose zero-emission vehicles. The draft updated NECP includes the goal of at least 260,000 electric vehicles on the country's roads by 2030, representing around 14% of the total vehicle fleet registered in Lithuania. To support this, the country plans to implement funding schemes for private and public charging infrastructure for electric vehicles. Around 54,000 private charging points and 6,000 public charging points are planned to be installed in Lithuania by 2030. In addition, by 2022 all Lithuanian municipalities had to prepare plans for the installation of public recharging points by 2030 (close to dense population areas, shopping, recreation and leisure centres, and health and educational establishments, etc.). Lithuania aims for electric and zero-emission vehicles to make up at least 20% of the light-duty vehicle fleet. The country also plans to develop the recharging and refuelling infrastructure needed. Furthermore, the draft updated NECP sets a target for increasing the electrification of the railway to 35% by 2030, up from 8% in 2021.

Overall, the draft updated NECP includes a comprehensive set of measures aiming to promote sustainable and smart **mobility**, including implementing sustainable urban mobility plans and low-emission zones, building bike lines, supporting intermodal transport, modal shifts (e.g., from road to less polluting inland waterway transport), local production of electric buses, rail electrification, and infrastructure resilience (e.g., reducing the impact of extreme weather events on airports). Lithuania sets out a road map for 2024-2030 to develop sustainable airport infrastructure. This includes deploying a **sustainable aviation fuel** supply infrastructure, which should lead to at least 5% of sustainable fuels in the total aviation fuel consumption at Lithuanian airports to contribute to the ReFuelEU Aviation Regulation.

Finally, the draft updated NECP considers new **transport taxes**. Transport taxes in Lithuania are among the lowest in the EU and Lithuania is among the few countries without an annual pollution tax. Motor vehicles in Lithuania are taxed on the basis of the CO₂ content only at the time of their registration. Although incentives for low-CO₂ / Zero-emission cars are currently limited, the plan envisages the upgrade the above-mentioned measures in order to meet the transport decarbonisation objectives. However, the current policies to support carbon-intensive natural-gas road vehicles are not explicitly addressed.

The plan does not include options for the alternative (and more efficient) use of biogas, such as Combined Heat and Power, outside of road transport, where demand risks dwindling as of zero-emission vehicles become more widespread. Overall, the set of measures envisaged and the ambition of the plan are consistent with the decarbonisation goals set by the **Regulation on CO₂ emission standards for cars and vans**⁶.

The Lithuanian draft updated NECP does not identify the annual CO₂ emissions that can be captured from ETS emitters or non-ETS sources. There are no plans to deploy any dedicated CO₂ transport capacity. The draft updated NECP does not identify any geological CO₂ storage capacity. However, **carbon capture and storage** is referred to throughout the plan, mainly in connection to reducing the footprint of thermal plants, which is considered to be inevitable by 2050. Lithuania notes ongoing cooperation with Poland and Latvia. This is led by companies that have submitted two candidate CO₂ transport infrastructure projects as important projects of common European interest. However, it is not clear from the draft updated NECP where this infrastructure will be located or what is the overall planned capacity. Furthermore, the plan refers to several measures that mostly focus on promoting carbon farming on agricultural land and private forests and indicates carbon capture and use as a priority area for R&I.

Lithuania's draft updated NECP addresses the mitigation of **non-CO₂ emissions** in several sectors. While it does not include measures aimed at mitigating methane emissions in energy, including fugitive emissions and fuel combustion, it addresses methane emissions and N₂O from manure management in agriculture, as well as methane emissions in waste management, including solid waste and wastewater. It also provides measures aimed at reducing emissions of F-gases and includes measures on the development of biogas and bio-methane and links their production to the use of agricultural waste and organic waste.

The draft updated NECP also includes objectives in agriculture (e.g., at least 70% of manure and slurry production in a sustainable way to reduce methane, N₂O and ammonia emissions; 50% of pig and cattle manure is used for biogas production) and waste management (e.g., reduce per capita food waste by 50%; maximum of 5% by weight of municipal waste generated as a proportion of municipal waste going to landfills). In addition, Lithuania sets a national target of 3.8% reduction in agricultural emissions by 2025 and 11% reduction by 2030 compared to the reference year 2005.

Finally, even though the draft updated NECP mentions methane emissions from enteric fermentation in agriculture, it includes only one measure on research. Similarly, the draft updated NECP mentions N₂O from agricultural soils, but provides only one mitigation measure despite the sector's significance for non-CO₂ emissions. These shortcomings are

⁶ An EU-level reduction per OEM of 55% for cars and 50% for vans of CO₂ 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.

problematic, because these greenhouse gas emission sources accounted together for 24% of all greenhouse gas emissions within the Effort Sharing sectors in 2021.

The **policies and measures** are described in sufficient detail in terms of their scope, timing and a detailed assessment in terms of their impact on the achievement of the GHG mitigation targets has been included in the draft updated NECP.

The draft updated NECP reflects progress towards **international commitments** under the Paris Agreement. Lithuania has already phased out coal use in the power sector. Regarding fossil fuel subsidies, Lithuania refers to the Law on excise duties amended in 2022 with the aim to gradually reduce or phase out tax benefits in the draft updated NECP. Thirteen fossil fuels subsidies have been identified to be phased out by 2026. However, based on the available information there are still some other fossil fuel subsidies but the updated draft plan does not include information on how and when those remaining ones will be phased out.

On 23 July 2021, Lithuania submitted to the Commission its **national long-term strategy**. The strategy includes the goal of achieving climate neutrality by 2050. In March 2023, Lithuania reported on the status of implementation of its initial NECP, where the climate-neutrality objective was confirmed. This climate-neutrality goal is reiterated in the draft updated NECP.

3.1.2 Adaptation

Lithuania has correctly identified the sectors that are most relevant to climate change and that may hinder achieving national objectives, targets and contributions, in particular, in relation to decarbonisation. Most adaptation measures set out in the draft updated NECP aim to contribute to decarbonisation and the following 2030 targets: (i) economic losses related to climate must not exceed 0.08% of the country's annual GDP; and (ii) the proportion of expected adverse, natural and catastrophic weather events make up at least 90% of the actual events. Although specific vulnerabilities and risks related to other dimensions of the Energy Union are not described, the country plans certain policies and measures. For example, for the internal energy market dimension, Lithuania aims to increase the electricity distribution infrastructure's resilience to climate and environmental effects. This involves activities such as replacing overhead electricity transmission lines with underground cables.

Positively, the report contains references to the national governance systems on integrated water management and flood risk management (although there are no clear links to the River Basin Management plan under the Water Framework Directive and the Flood Risk Management Plan under the Floods Directive. Yet, while the increase in drought spells is acknowledged up front, there is no mention of developing Drought Management Plans and (natural or non-natural) water storage facilities.

The country's draft updated NECP describes planned and implemented nature-based solutions. Lithuania will focus on the extensive use of green infrastructure and other solutions in urbanised areas when creating a balance between nature and urban environments. The country plans adaptation measures with a stronger focus on forestry, ecosystems, biodiversity, landscape protection, preserving and boosting ecosystems' resilience, and the scale and value of ecosystem services. The development of green infrastructure (such as sustainable alternatives to grey infrastructure and measures to

increase the resilience of the living environment) and other nature-based solutions are expected to help achieve strategic long-term climate adaptation objectives for 2050. The report mentions nature-based solutions for flood risk management which also contribute to the recovery of wetlands. The draft updated NECP sets out some climate change adaptation policies and measures that are linked to water. However, these do not tackle structural or seasonal water scarcity; they deal with flood-risk management systems, preventive measures for floods, and improving surface water and groundwater monitoring systems and research.

Lithuania's drafted updated NECP focuses on climate adaptation measures that also contribute to preserving biodiversity. This includes restoring peatlands, conserving grasslands and habitats, developing green infrastructure in degraded agricultural land, promoting sustainable forestry in private forests in the context of climate change, and preparing or updating protected spatial planning documents and implementing them. The draft updated NECP also includes restoring and protecting wetlands to ensure they are resilient and providing adaptation services. Furthermore, the country's updated NECP includes plans to implement coastal management measures as well as disaster prevention measures in forests. Lastly, it creates legal preconditions for integrating assessments of ecosystem services to make them part of the decision-making process to protect biodiversity.

Lithuania's draft plan fails to consider innovative approaches, such as insurance policies and fiscal measures tackling the climate protection gap.

3.1.3 Renewable energy

The renewable energy contribution proposed by Lithuania in the draft updated NECP is for renewables to achieve a share of 55% of the country's national gross final consumption of energy in 2030. This target will mainly be achieved through existing policies and measures. The contribution is significantly above the share of 49% resulting from the formula in Annex II to the Governance Regulation. Additional planned policies and measures will be needed to fully achieve the contribution, but only to a lesser extent, as most of the needed policies are assessed to already be in place. The scenarios are detailed and provide yearly overall renewable energy contribution and sectoral trajectories up to 2030 and projections for 2040. The indicative trajectory to reach the 55% contribution in 2030 is provided, including specific reference points for 2022 (renewables share of 35%), 2025 (41%) and 2027 (46%)⁷. For the year 2022 the draft plan is above the trajectory (25%) calculated in line with the EU 2030 renewable energy target of 32%, which was in force at that time. Moreover, the reference points for 2025 and 2027 are above the trajectory (34% and 40% respectively) calculated in line with the increased EU 2030 renewable energy target of 42.5%⁸.

⁷ Reference points of 18% by 2022, 43% by 2025 and 65% by 2027 pursuant to Article 4(a)(2) of Regulation 2018/1999 pursuant to Article 4(a)(2) of Regulation 2018/1999.

⁸ Given that the provisionally agreed RED was not yet in force by the deadline of the submission of the draft NECPs, the value for 2022 has been compared to the trajectory values calculated on the basis of the 2030 EU renewable energy target of 32%. The reference points for 2025 and 2027 are compared to the trajectory calculated on the basis of the increased EU target of 42.5% in line with the revised RED.

In the WAM scenario, **renewable electricity generation is projected to reach 100% of all electricity generated in Lithuania in 2030**. Wind power is set to remain the main source of renewable electricity with a projected share of at least 60% and 6.4 GW of installed capacity, of which 1.4 GW will be offshore. This implies that the installed capacity will increase around 10 times compared with 2021. Solar power is projected to be the second main source of renewable electricity in the country in 2030 with a 19% share and 4 GW of installed capacity. Hydropower is forecast to account for 7% of electricity generated in Lithuania in 2030. Bioenergy is expected to maintain its current level in 2030 with a 6% share and 73 MW of installed cogeneration capacity. The draft updated NECP does not include any information on the target for deploying innovative renewable energy.

Lithuania's draft updated NECP indicates that the use of **renewable energy in the heating and cooling sector is projected to reach a share of 67.2% by 2030**. This increase from today's use of renewable energy is above the mandatory annual increase in the share of renewable energy in heating and cooling set out in the revised RED II. It is unclear what role waste heat and renewable electricity accounting will play in the trajectory and what impact they will have on the target set and meeting the target. The draft updated NECP includes elements on the share of energy sources, however it does not distinguish between bioenergy and other sources of renewable heat (heat pumps). The use of renewable energy in district heating and cooling is set to reach 90% over the 2021-2030 period. The draft updated NECP does not include the use of renewable energy in **industry** or renewable energy in **buildings**.

In the transport sector, the share of renewable energy is projected to reach 15% in 2030. Lithuania has not provided the equivalence of the target for reductions in GHG emissions. The country has set a target for the use of electricity in the transport sector, aiming for around 15% of the total vehicle fleet to be electric by 2030. For the transport sub-targets, the main measures set out in the draft updated NECP are the introduction of a supply obligation for renewable fuels. This requires fuel producers to supply at least 16.8% renewable fuel by 2030. Advanced biofuels are promoted via additional mandatory targets and are expected to account for 3.5% of fuels used in transport in 2030. In addition to liquid renewable fuels, biomethane and renewable gases are expected to play a major role in the transport sector, covering by 2030 at least 5.2% of final energy consumption. Conventional biofuels are still the dominant source of renewable energy in the transport sector, but their contribution was limited to 5.61% in line with Article 26 of RED II.

The draft plan does not include the targets for the use of renewable fuels of non-biological origin (RFNBOs) in demand sectors, such as in industry and transport. On the other hand, the plan states that **renewable hydrogen** production capacity will be developed for use in the transport sector but does not provide information on the planned capacity of electrolyzers for 2030. Up to 2030 1,680,000 m³ of renewable hydrogen is expected to be produced. The draft updated NECP does not contain information about **international partnerships** such as an agreement, memorandum of understanding (MOU) or bilateral talks to facilitate imports of renewable hydrogen.

Lithuania's draft updated NECP contains a comprehensive overview of existing and planned **policies and measures** to support achieving the proposed renewable energy objectives and contributions. However, they do not cover all the sectors subject to the revised RED II; this will be necessary to ensure Lithuania successfully contributes to the 2030 EU renewable energy target. For example, in the **electricity sector**, Lithuania has set the objective to accelerate production of electricity from renewable energy by deploying

offshore wind in the Baltic Sea and giving financial support to prosumers, energy communities and the public sector. Lithuania indicates that guarantees of origin will be issued to electricity producers, including producers who receive support, thereby providing a complementary revenue stream. Guarantees of origin will also be used in green public procurement. The draft updated NCP states that Lithuania is open to carrying out **joint projects** or organising joint support schemes with other Member States through an agreement. However, further details are not provided.

The draft updated NECP recognises the role of solar energy in meeting sectoral electricity and heating and cooling targets. It includes several supporting measures but does not make any links with the EU solar energy strategy objectives. Individual and collective **self-consumption of solar energy** and **renewable energy communities** are considered as ways to achieve the EU solar strategy's objectives. These will be promoted through financial support, recommendations for developing renewable energy communities and citizen energy communities and simplified permit-granting procedures for installations of less than 100 kW.

Lithuania's draft updated NECP sets a **quantitative self-consumption target for 2030**, aiming for 30% of prosumers to make up the total number of electricity consumers. The draft updated NECP presents sufficient and well-described measures to promote individual and collective self-consumption and renewable energy communities. There is no mention of a specific strategy on energy system integration. However, Lithuania has included some measures to facilitate and give incentives for the development of flexible solutions, such as demand response and storage through network tariff measures designed to increase the flexibility of the electricity grid. For example, the uptake of storage will be promoted through grants totalling about EUR 3.3 million to help households deploy 20 MWh of electricity storage solutions.

Measures for **renewable heating and cooling** set out in Lithuania's draft updated NECP include increasing the use of renewables in the district heating sector; implementing local and renewable energy combined heat and power projects; promoting the use of waste heat from industry and the reuse of waste heat or cooling in the district heating sector; and modernising or replacing depreciated biofuel boilers with other renewable technologies (including heat pumps and high-efficiency biofuel boilers). The draft updated NECP provides a list of measures which are aimed at implementing the requirements of Article 23(4) of the revised REDII, but very little detail is provided. No measures related to **industry** have been included except for a reference to a measure on phasing out fossil fuels in decentralised heating in industry sector. However, no further details about this measure are given.

Bioenergy is planned to be part of the measures to decarbonise industry and make it more competitive. Lithuania's draft updated NECP also includes investment support for installing biomethane production and treatment plants. This is because planned requirements for managing agricultural waste and food waste are becoming more and more stringent, leading to an increasing amount of bio-based raw materials that can be used for energy production. Overall, by the end of 2030, existing RES promotion policies are expected to include capacity to produce around an additional 150 GWh of biofuel and around 950 GWh of biomethane. Overall, Lithuania expects to produce 1.4 TWh of biomethane by 2030. The draft updated NECP does not provide detailed information on the trajectories of bioenergy supply by feedstock and origin, bioenergy demand or sustainability. In addition, the draft updated NECP does not assess Lithuania's domestic

supply of **forest biomass** for energy purposes in 2021-2030 under the revised sustainability criteria. It also fails to assess the compatibility of the country's projected use of forest biomass for energy production with its new obligations under the revised LULUCF Regulation, especially for 2026-2030. There are also no national measures and policies to ensure this compatibility as required under the revised RED II.

The draft updated NECP does not include a **list of the areas** that will be critical for Lithuania to focus on to achieve its national contribution to the EU renewable energy sources target. The plan also fails to designate renewables acceleration areas and dedicated infrastructure areas. To streamline administrative procedures, the draft updated plan includes a reference to several contact points for project promoters. However, it does not specify the type of renewable energy projects that are under the responsibility of these contact points. Other measures to streamline administrative procedures include a package adopted in 2022 aiming to accelerate the deployment of renewables onshore and kickstart offshore development. The package sets out the framework for hybrid power plants, combining multiple generation technologies and/or storage facilities at one grid connection point; simplifies the permit-granting framework for wind and solar plants; and provides for two types of tendering procedures for the development of offshore renewable energy. The draft updated NECP does not elaborate on the additional human resources dedicated for granting permits.

3.2 Energy efficiency (including buildings) dimension

Energy savings are presented as a central pillar of the draft updated NECP, with Lithuania targeting to reduce final energy consumption by 0.13 Mtoe/year until 2030 compared with the 2017-2019 average.⁹ This corresponds to a corrected national contribution of 5.2 Mtoe for primary energy consumption (compared with 5.16 Mtoe according to the EED recast Annex I results) and 4.2 Mtoe for final energy consumption (compared to 4.25 Mtoe according to the EED recast Annex I results). Lithuania's 2030 national contributions are set at a level corresponding to the results of the use of formula in the EED recast Annex I.¹⁰ However, the projected contributions (in WEM and WAM scenarios) do not appear to reach those targets.

The targets for 2030 are lower than Lithuania's 2020 energy efficiency targets (-20% for primary energy consumption and -2.3% for final energy consumption).¹¹

Lithuania's target for reducing total final energy consumption of **all public bodies** is well described in its draft updated NECP. It includes well-reasoned information on the planned measures, including some information on public transport, but no mention of the country's armed forces.

The draft updated NECP provides satisfactory information on what measures will be used to deliver the savings required post-2020 under **Article 7 EED (Article 8 of the EED recast)**. The policies and measures set out in the plan for the energy efficiency dimension

⁹ Calculations by JRC: 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.

¹¹ The comparison has been done with the 2020 targets as included in the final 2020 NECP JRC assessments (6.5 Mtoe PEC, 4.3 Mtoe FEC).

are sufficiently described and include an adequate estimation of energy savings. Sufficient explanations are provided on how the measures contribute to achieving the 2030 energy efficiency contributions.

The overall cumulative end-use energy savings target for Lithuania is 39.3 TWh (3 383.9 ktoe) by 2030. Based on energy savings from each policy measure, the expected cumulative savings in 2030 are estimated to be 34.5 TWh from existing energy efficiency measures and a further 11.9 TWh from planned energy savings. This brings the total energy savings to 46.4 TWh for 2030, well above the 39.3 TWh binding target.

Lithuania's draft updated NECP sets out four new planned measures, focusing on the building sector. Out of all energy efficiency projections, the measures on buildings have the greatest impact on savings.

Additional energy savings are expected from renewing the urban and suburban public transport fleet, electrifying railways and implementing sustainable urban mobility plans.

The draft updated NECP presents in detail the planned measures to achieve the higher 2030 energy efficiency goals, as well as their expected savings. Lithuania describes measures adopted after 2020 and new planned measures. Information on a National Energy Efficiency Fund is missing. The draft updated NECP also includes measures reflecting the Energy Efficiency First principle.

Lithuania's draft updated NECP does not plan raising the ambition of the 2020 submitted long-term building renovation strategy and its targets and milestones for 2030, 2040 and 2050. However, it keeps the same target of a 60% reduction in annual PEC by 2050 compared with 2020, which can be considered to be ambitious.

The baseline PEC and FEC values from 2020 are different to the values used in Lithuania's final 2020 NECP. In the draft updated NECP, the country acknowledges this adjustment but argues that it was necessary.

The draft updated NECP sets out some measures on buildings related to renovating different types of buildings and modernising heating systems. The measures each include targets, indicators and milestones. The contribution of each target and milestone is quantified, and appears realistic.

The Lithuanian draft updated NECP projects that PEC and FEC are expected to increase by 2030 and then decrease by 2040. Therefore, it is not clear how the projected increase in households' FEC by 2030 and 2040 is compatible with the energy savings projected by building-sector policies and measures. Furthermore, there is an inconsistency between the level of energy savings of these measures (18.61 TWh) which is significantly higher than the savings target declared elsewhere in the document (10-11 TWh).

Measures in the Lithuanian LTRS specifically target vulnerable consumers wherever applicable (e.g., replacement of heat boilers in multi-apartment buildings, renovation of buildings). Additionally, the draft updated NECP provides a detailed and comprehensive overview of existing and planned energy efficiency measures to tackle energy poverty.

3.3 Energy security dimension

Fossil fuels still play a major role in the Lithuanian energy mix, accounting in 2021 for 64% of gross available energy¹². According to the country's draft updated NECP, this share is expected to decrease, falling to around 55% by 2030. Lithuania used to be heavily dependent on imports for its energy needs in the past, in particular from Russia. In 2021, Lithuania was dependent on **imports from other countries** for 75% of its energy needs, against 81% in 2013¹³. This slight reduction in dependence on other countries has been helped, in particular, by the commissioning of the Klaipeda LNG Terminal, electricity interconnections with Poland and Sweden and the construction of a gas interconnection with Poland.

Natural gas accounted for 24% of the energy mix and 25% of the electricity mix in 2021. However, Lithuania does not have any domestic gas resources and therefore imports all of its gas needs¹⁴. In 2021, 37% of gas was imported from Russia¹⁵. Following Russia's full-scale invasion of Ukraine, Lithuania decided to fully ban gas imports transiting through Belarus (which was the entry route of Russian gas to Lithuania), except for gas going to Kaliningrad. The Klaipeda LNG terminal and the GIPL pipeline with Poland have made it possible for Lithuania to substantially diversify its gas suppliers. The ELLI project, which has improved the gas interconnection with Latvia, has also helped improve Lithuania's energy security: this is crucial considering that Lithuania uses the Inčukalns site in Latvia to store gas.

To ensure its long-term LNG supply after 2024, Lithuania intends to acquire the floating storage regasification unit operating in the Klaipeda LNG terminal at the end of 2024. In addition, natural gas consumption is expected to decrease substantially, from 752.5 ktoe and 13.4% of total energy consumption in 2020 to 368 ktoe and 6.5% of total energy consumption in 2030. Lithuania reports that the N-1 indicator is met by 117%, ensuring sufficient capacity if there is any disruption to the single largest gas infrastructure.

Lithuania reduced its gas consumption by 37% from August 2022 to August 2023 compared with the average of the previous 5 years. This reduction is well beyond the -15% indicative target and the EU27 average (-18%)¹⁶. The draft updated NECP does not, however, show how the emergency measures adopted in response to Russia's full-scale invasion of Ukraine, in particular on reducing gas demand, are integrated into the medium-term planning to 2030.

Security of **electricity supply** in Lithuania (and the Baltic States in general) is threatened by being the only Member States with electricity systems still operating in the IPS/UPS system. This system's frequency is managed centrally from a dispatching centre located in Moscow. Lithuania's draft updated NECP states that it is a priority for the region to connect to the central Europe synchronous area, planned for February 2025.

¹² Eurostat.

¹³ Eurostat.

¹⁴ Energy mix figures from the [EU energy statistical pocketbook and country datasheets \(europa.eu\)](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&plugin=1).

¹⁵ European Commission, https://economy-finance.ec.europa.eu/system/files/2023-06/ip239_en.pdf.

¹⁶ Directorate-General for Energy's Chief Economist Team based on ESTAT NRG_CB_GASM (sub-series IC_CAL_MG subtracted by TOS) in TJ (29 September 2023, 11:00).

Another important element to consider is that around two thirds of Lithuanian electricity demand is met through imports.¹⁷ The draft updated NECP presents a very ambitious expansion plan for renewable energy sources to change this situation and turn Lithuania into an electricity exporting country. It sets an objective for 2039 of 6.5 GW of electricity to be generated by wind power. The BEMIP offshore wind task force made up of Latvia, Estonia, Lithuania, Finland, Sweden, Poland and Germany contains non-binding targets for 2050. The overall objective for Baltic offshore wind development is 22.5 GW for 2030, including 1.4 GW in Lithuania. The tender is planned for the third quarter of 2023, with wind turbines expected to be running by 2028. Surplus electricity generated by wind will be used in power-to-gas technologies in cooperation with neighbouring countries.

To facilitate the integration of renewables into the electricity system, Lithuania's draft updated NECP sets the ambition of enabling 30% of electricity consumers to become prosumers (that is, active consumers). This will be done through the installation of solar PV and active participation in local energy communities. The specific targets are 600 MW of electricity generated in the business sector, 340 MW in the residential sector and 130 MW in the public sector. In parallel, the plan aims to deploy storage systems for power generated by renewable energy sources. The plan contains an objective of 20 MWh of battery storage in the residential sector for 2023-2029. Currently LitGrid, Lithuania's transmission system operator, is running a pilot battery project on frequency management, stability and security of the system. Yet, the draft updated NECP does not set out refer to a dedicated strategy for the deployment of power storage capacity in the country. According to a study on storage commissioned by the Commission, Lithuania's current operational power storage capacity is around 900 MW (mainly pumped hydro)¹⁸.

In parallel with the expansion of renewable energies and after the synchronisation project with CE area, the Baltics States will develop the balancing market as they will consequently form a single control block. It is estimated that the region will need 1,512 MW of frequency regulation from 2025 onwards. To meet this demand, Lithuania will use existing capacity (including the expansion of the 'Kruonio' pumped power plant and gas fired power plants), supplementing it with the future batteries, downward regulation from RES and demand aggregators as providers of balancing services. The updated draft NECP mentions the need for non-frequency ancillary services.

Oil was the largest single energy source (38%) in Lithuania's primary energy mix in 2021¹⁹. Oil is mainly used in transport and industry²⁰. Lithuania has limited oil production and is therefore very dependent on crude oil imports. Before Russia's full-scale invasion of Ukraine, Lithuania imported 76% of its crude oil from Russia (2021). Imports stopped after the invasion, and Lithuania instead imported more from the USA, Saudi Arabia and

¹⁷ In May 2022 Lithuania decided to stop all electricity imports from the Russian Federation.

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/.

¹⁹ Eurostat.

²⁰ Eurostat.

the UK. The country has a robust emergency oil stock system, i.e., ensuring that the most consumed oil products are covered by specific stocks guaranteed by the state.

With three ports and the only refinery of the region, Lithuania also plays a major role in the Baltic region for security of supply as a net exporter of oil products to its neighbours. The draft updated NECP does not specifically address the impact of its own and neighbouring countries' decarbonisation efforts on the national oil infrastructure (refinery, oil stocks) and on security of oil supply.

Lithuania's **cybersecurity** is expected to increase with the implementation of Directive 2022/2555 on measures for a high common level of cybersecurity across the Union (the NIS2 Directive). The draft updated NECP also mentions cybersecurity in research, innovation and competitiveness. However, the plan does address protecting critical infrastructure.

In the draft updated plan, Lithuania briefly describes the measures in the event of a **natural gas security of supply crisis**. These measures are detailed in the emergency plan from 2019. The emergency plan was still being revised by Lithuanian authorities at the time of submitting the draft updated NECP, but it has since been submitted. It is now being assessed by the European Commission. Lithuanian authorities have still not submitted their updated national risk assessment and the common risk assessment for the north-eastern risk group, which were due by 1 October 2022 (no country has yet volunteered to coordinate the work). However, the common risk assessment for the Belarus risk group was submitted and is currently being assessed by the Commission.

3.4 Internal energy market dimension

The level of Lithuanian **interconnection** is already exceeding the 2030 target, and no further specific measures are set out in the draft updated NECP.

The draft updated NECP effectively addresses both electricity and gas **energy infrastructure**. For electricity, the plan mentions several transmission projects as part of implementation of the synchronisation project. However, there are no measures in the draft updated NECP to quickly implement these projects. This is particularly missing for the Harmony Link interconnector with Poland, which would ensure the Baltic synchronisation is as secure as possible.

On the higher renewable energy target and the need to enable consumers to rapidly reap benefits, the draft updated NECP presents key policies and measures to incentivise electricity sharing and pilot projects on **flexibility** services. The plan also mentions studies to develop virtual management technologies for both the plan and demand side although no clear overview of the flexibility needs is provided. The draft updated NECP also refers to the significant engagement of distribution system operators to promote the development of prosumer engagement. Nevertheless, for new flexibility services, the draft updated NECP is missing clear targets and objectives for demand response, storage and detailed policies and measures to enable their non-discriminatory participation.

Lithuania's draft updated NECP includes the aim to launch a centralised data exchange platform for storage. However, it does not indicate specific measures to accelerate the deployment of electricity storage or to engage system operators in facilitating the roll-out of flexibility services. Lithuania is carrying out a pilot battery project to test the usability of battery storage systems in the electricity system. Lastly, the draft updated NECP

indicates Lithuania's intention to put in place a capacity mechanism covering demand response, storage facilities and other measures; however, there is no timeline or assessment on how adequate it is.

On energy poverty, Lithuania outlines the indicators it uses for calculating the number of energy poor, which includes high energy expenditure and a self-assessed ability to adequately heat one's home. However, the energy poverty data used in the Lithuanian draft updated NECP is outdated and does not take into account the latest policy and legislative developments.

The Lithuanian national progress programme for 2021-2030 aims to reduce the share of the population unable to adequately heat their homes and the number of households devoting a high share of their income to cover energy bills to 17% and 10%, respectively, by 2030. The country will do this through direct income support, energy efficiency improvements, making energy prices more affordable, incentives for vulnerable customers to engage in prosumer and/or community energy schemes, and by raising consumer awareness.

The new measures in Lithuania's draft updated NECP focus on support to municipalities in addressing energy poverty via a dedicated information hub. The measures also tackle the issue of vulnerable customers with no or low access to online services and create targeted information services (on energy bills, compensation and energy saving measures) integrated into the social assistance network. In addition, the country has significantly expanded measures on house renovation compared with the 2020 NECP, aiming to renovate 5 500 multi-apartment buildings by 2030.

Lithuania's draft updated NECP also introduces new measures to further improve the regulatory framework for developing and managing increasingly decentralised energy systems. The measures include creating a legal basis for peer-to-peer electricity sharing and trading and setting up digital platforms/data hubs for energy-related data. However, the drafted updated NECP does not clearly explore synergies with measures to develop demand response and accelerate building renovation and energy savings in a targeted manner, which is necessary to have a direct impact on energy poor households and empower vulnerable consumers.

3.5 Research, innovation, competitiveness and skills dimension

3.5.1 Research and innovation

In its draft updated NECP, Lithuania reported on national R&I targets and programmes in specific clean energy technologies. The country aims to increase its R&I spending to at least 2% of national GDP by the end of this decade (from 1% of GDP in 2019). However, the share of clean energy in all R&I spending was not specified. The two main strategy documents, the national energy independence strategy and the smart specialisation strategy for 2021-2027, set out a clear overall objective for Lithuania to move from being a current net importer to a net technology exporter and include detailed measures to develop clean energy technologies and digitalisation. Lithuania reports an increase in R&I spending from 2019 to 2022 but provides no information on future trends or targets. The draft updated NECP indicates the estimated costs of existing and planned measures, which amount to EUR 8.7 million. However, it is not fully clear whether these figures are specific to energy

or cover all sectors of the economy. Lithuania's draft updated NECP does not detail its pathways for R&I in clean energy technologies for 2030 and 2050.

The draft updated NECP makes references to the joint Nordic-Baltic energy research programme and joint applications for important projects of common European interest with Poland and Latvia. This suggests that there is already regional cooperation taking place between Lithuania and other Member States. Lithuania is also a member of three SET plan implementation working groups (batteries, nuclear safety, high-voltage direct current technologies) and the Clean Energy Transition Partnership. Lithuanian activities at EU level correspond to some of its priorities highlighted in the draft updated NECP. However, there are no details on targets to be achieved through these regional cooperation initiatives.

3.5.2 Competitiveness

The draft updated NECP describes the very close link between Lithuania's objective to increase its industrial base and competitiveness and its objective to make its economy greener. Lithuania is planning to put in place measures intended to support R&I and investments in manufacturing, and a scaling-up of commercially available clean energy technologies, equipment and components. Related measures include supporting the digitalisation of industry, science-business cooperation, developing a centre of excellence in renewable energy technology, and supporting the production of electricity storage technologies. Lithuania considers the following strategic value chains to be particularly important: batteries; connected, clean environment and autonomous vehicles; low-carbon industry; hydrogen technologies and systems. However, there is no quantitative objectives relative to these priorities.

In its draft updated NECP, Lithuania has referred to the circular economy as a relevant component of decarbonisation, industrial transformation and to reduce raw materials dependency. This is reflected in Lithuania's draft guidelines for its transition to a circular economy by 2035, which was approved by a government protocol decision on 21 June 2023. The plan contains few concrete targets for circularity, however.

Objectives and action for the digitalisation of all sectors of the economy feature prominently throughout the country's draft updated NECP. It provides some information on the digitalisation of energy system EU action plan, without specifically referencing it.

3.5.3 Skills

Lithuania expects to have a short- and long-term impact on workers' skills development due to higher employment and learning by doing as well as on the demand for professional skills linked to renewable energy sources. However, while the draft updated NECP mentions the need to develop new skills for the energy and digitalisation sectors (both professional and citizen skills), it does not include specific labour market analyses or forecasts in this regard. Accordingly, measures and policies remain general. Moreover, the draft updated NECP does not provide any information on skill gaps in clean energy industries or measures or investments to boost European competitiveness in clean energy technologies, equipment and components, connecting, for instance, with the SET Plan revision, relevant European Year of Skills initiatives, the Pact for Skills large scale partnerships, and the New Innovation Agenda.

4 JUST TRANSITION

Just transition aspects are partially addressed in the draft updated NECP. An assessment of the macroeconomic, skills and social dimension of the planned policy measures was carried out between May and June 2023. The measures are expected to have positive impact on employment (1.7% increase up to 2030), skills, household disposable income and energy affordability (the share of households unable to adequately heat their houses is estimated to decrease by 3.75% by 2030). However, as assessed in Chapter 7, the draft updated NECP does not provide an adequate analytical basis for the preparation of the Social Climate Plan.

In the context of climate and energy transition, policies and measures addressing **employment** are not well developed in the draft updated NECP while **affordable and inclusive education, training and life-long learning** are mentioned in a quite general way without providing details on ambition and scope. The challenge will mainly be tackled by mainstreaming climate change in all levels of education systems and by raising awareness among consumers and youth about the green transition and choices. Although there is an intention to upskill workers in the industry, concrete measures are not outlined. Overall, the plan lacks quantifiable targets and objectives linked to these policy areas.

On the other hand, the draft updated NECP includes a well-developed set of measures to tackle energy poverty and increase affordability, including structural measures such as housing renovation, replacement of boilers, subsidies for solar PVs and educational campaigns for vulnerable customers. But as assessed in Chapter 3, the impact of the measures on energy poverty is not demonstrated. As for the **tax-benefit system**, there are no measures addressing personal income taxation in the context of the climate and energy transition.

Finally, the draft updated NECP mentions the use of the Just Transition Fund linked to industry but does not elaborate on the link with territories covered by the territorial just transition plan nor details the resources specifically devoted to supporting the just transition.

5 REGIONAL COOPERATION

Lithuania's draft updated NECP sets out a strategic role for regional cooperation, but consultations with neighbouring countries on the draft updated NECP will only take place in autumn 2023. The draft updated NECP describes efforts for cooperation on energy, in particular with neighbouring countries and regulatory authorities, taking into account common challenges and shared objectives. For example, the draft updated NECP includes information on regional cooperation efforts within the BEMIP high-level group on deploying offshore wind projects, the Baltic synchronisation project and the gas market merger that Lithuania is pursuing together with Latvia, Estonia and Finland.

The agreement on sea-basin offshore renewable goals is mentioned in the draft updated NECP. However, it does not describe in detail how Lithuania will meet its ambitions for installed capacity (1.4 GW by 2023, 2.8 GW by 2040 and 4.5 GW by 2050), including cooperation mechanisms like joint projects and statistical transfers. There is also little information on the two offshore projects planned to be implemented by 2030.

Lithuania has serious concerns about the safety of nuclear power plants located in its neighbouring countries. New measures aimed at improving emergency preparedness and response with a special focus on the Astravets nuclear power plant in Belarus have therefore been implemented and/or are planned to be introduced by 2030.

On regional cooperation on security of supply, Lithuania has signed one solidarity agreement with Latvia out of the two required (the remaining one is to be signed with Poland).

6 INTERNAL COHERENCE AND POLICY INTERACTIONS WITHIN THE DRAFT UPDATED NECP

The draft updated NECP reflects key synergies within and between the five dimensions of the Energy Union. This includes the impact of increasing flexibility and demand response measures on the penetration of renewable energy and the integration of the internal energy market. Similarly, the interaction of key objectives clearly shows the link between the diversification of energy sources and the deployment of renewable sources.

However, the draft updated NECP does not include a complete analysis of the consistency of policies and measures under each dimension or a quantitative analysis of the links between certain objectives. Measures are listed for the energy security dimension, in particular on the development of gas and electricity infrastructure. These aim to ensure reliable imports of energy sources and increase local production, especially electricity generation from renewable energy sources. Therefore, if Lithuania diversified imports and strengthened the RES balance sheet in the energy market, this would not only ensure secure energy supplies but also reduce the volatility of energy sources.

7 STRATEGIC ALIGNMENT WITH OTHER PLANNING INSTRUMENTS

Lithuania formally submitted a modified RRP and REPowerEU chapter to the European Commission on 30 June 2023. It was adopted by the Council on 9 November 2023. The plan for Lithuania covers well the main reforms and investments of the RRP that contribute to implementing the objectives, targets and contributions. In particular, the draft updated NECP contains a detailed assessment of the investment needs, per sector, and clearly identifies the recovery and resilience facility investments in the corresponding chapters. The draft updated NECP includes or refers to 25 out of the 29 climate relevant measures in the RRP (i.e., those with 40% - 4 measures - or 100% - 25 measures - climate tagging), covering 20 RRP investments. In particular, the fiche presented at the end of the document provides further details on the share of the overall amended RRP to the total investment needed to achieve the NECP targets. Similarly, the draft updated NECP compares the trajectories to be achieved by 2030 to the ones to be implemented in the RRP and clarifies which part of the NECP ambition is related to the RRP. A table further identifies the synergies present between RRP and NECP measures.

Overall, only two measures among those 100%-climate tagged are poorly or not reflected in the draft updated NECP. Nonetheless, these measures are secondary to bigger investments on renewable energy sources and building renovations. Additionally, two measures on energy efficiency in public hospitals are not directly reflected in the plan but are embedded in the measure for renovation of public buildings. In a few cases, the

consistency between NECP and RRP is unclear. For instance, the draft updated NECP supports the building renovation to achieve energy efficiency class C or B, while the RRP supports building renovations of class A and B.

In terms of the **national air pollution control programme and projections**, the draft updated NECP recognises clean air aspects throughout the document and for a number of policies and measures. It quantifies the impacts of planned policies and measures on projected emissions of the main air pollutants for which Directive 2016/2284 sets emission reduction commitments. However, the draft updated NECP does not explain whether the projections submitted here are aligned with those submitted under Directive 2016/2284 and how clean air and energy and climate programmes are aligned.

The draft updated NECP is consistent with the adopted **Territorial Just Transition Plan (TJTP)** except that planned GHG savings and fuel and energy savings linked to production and use of hydrogen presented in the draft updated NECP are not matching the latest quantifications in the TJTP.

The draft updated NECP does not provide an adequate analytical basis for the preparation of the **Social Climate Plan** 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. Lithuania has not yet assessed the number of households in transport poverty and has not provided the methodology and indicators to identify the future recipients of the social climate fund, taking into account the distributional effects arising from the future ETS2. The draft updated NECP outlines a consistent set of decarbonisation policies and measures in the buildings and road transport sectors, including measures targeted at the most vulnerable groups, however inadequate information is provided on the concrete reforms and policy framework for the future Social Climate Plan. The current draft mentions the Social Climate Fund as a future potential source of financing for some measures, even if further details are missing on how the Social Climate Plan will build on the NECP update and how the consistency between the two plans will be ensured.

In the draft updated plan, Lithuania does not explain whether the **CAP Strategic Plan** is in line with the new LULUCF and ESR targets and whether additional measures are necessary.

The plan is in line with the **national adaptation strategy** on the respective actions.

The draft updated NECP addresses the challenges identified in the **2023 European Semester Country Specific Recommendations**. It includes actions to reduce the dependency on fossil fuels by putting forward measures to accelerate the deployment of renewables, pursuing efforts on energy efficiency of buildings, actions to upgrade Lithuanian electricity infrastructure to enable the roll-out of renewables, improves conditions for prosumers participation to the green transition, and addresses the necessity for reinforced skilling of the workforce.

8 FINANCING THE ENERGY AND CLIMATE TRANSITIONS

8.1 Investment needs

The draft updated NECP includes precise information on the expected investment needs, by sector and by policy area, to implement the planned policies and measures for the five dimensions of the Energy Union. It distinguishes between the use of public budgets and the need to mobilise private investment by sector (transport, industry, agriculture, CO₂ storage, wastes, renewable energy resources, energy efficiency, internal market, energy security and research and development) for both existing and planned policies. The total investment needs amount to around EUR 13.8 billion for existing policies (out of which 8.2 billion from public sources) and 11.8 billion for planned policies (out of which 4 billion from public sources). This results in a total of EUR 25.5 billion, of which EUR 12.2 billion are expected from public sources. For public investments, the plan further distinguishes EU and national sources, but only for existing measures.

8.2 Funding sources

The draft updated NECP outlines funding needs (both total and public) and the main sources of financing for each key policy area although not by specific policy action. It also breaks down the funding sources by existing instruments. Lithuania relies on a variety of national funding sources (such as the state and municipal budget and the climate change programme) and EU funding sources (such as the European Regional Development Fund, the Cohesion Fund, the Recovery and Resilience Facility, the Modernisation Fund, the Social Climate Fund and the Connecting Europe Facility). Lithuania also plans to attract public funds such as funds received for services of public interest (PPP funds), statistical transfers and loans from the European Investment Bank.

Lithuania's draft updated NECP does not clearly develop the form of support provided by EU funding sources. The role of public funding in mobilising private financing (including the use of EU shared management financial instruments where relevant) is not sufficiently described in the draft updated NECP. Although a table with overall budgetary information of the existing policies is available, information on planned policies and measures with details on the public and private contributions, the lifetime of the measure and the share coming from the EU budget (explicitly specifying the RRF contribution) are not provided.

9 ROBUSTNESS OF THE ANALYTICAL BASIS OF THE DRAFT UPDATED NECP

Overall, it is not possible to analyse the quality of the quantitative analyses underpinning Lithuania's draft updated NECP because it does not describe the analytical tools used to prepare the plan. There is no general description of the type of modelling tool (e.g., bottom-up and top-down modelling frameworks adopted, base year, time resolution and sectors covered) or the techno-economic parameters used. The plan does not provide explanations or references to the methodologies used for both types of scenarios (WEM and WAM) or the impact assessment for specific policies and measures.

The draft updated NECP includes a detailed description of the existing and planned policy measures considered in the WEM and WAM scenarios. For each policy, the plan discusses

the expected outcome in terms of GHG emission reductions and energy savings. However, a description of the methodology to assess these outcomes is missing. The plan discusses the projections for the relevant sectors of the economy, including industry, the energy system and transport, but does not cover all variables specified in Annex 1 part 2 of the Governance regulation. The new ETS for buildings, road transport and additional sectors (ETS 2) has been considered in the plan and in the projection scenarios, although it is unclear how.

Lithuania's draft updated NECP contains a macroeconomic assessment. Macroeconomic modelling was used to determine the quantified impact on GDP growth, investment, trade balance, employment figures, household income, etc. for the NECP implementation period (short-term) and post-NECP period (medium- and long-term). The methodology includes a baseline with existing measures and another scenario with planned measures. It is encouraging that Lithuania makes recommendations to increase the impact of NECP measures in the medium- and long-term as macroeconomic calculations only indicate a limited impact on annual GDP growth in the post-NECP period. However, the assessment is not always sufficiently developed, particularly sectoral impacts, where there are limited quantified data on the impact on sectoral value added. The overall modelling methodology is not detailed enough, for example, the main features of the modelling tools and underlying assumptions. Furthermore, the modelling underpinning the envisaged investment needs is not described in detail and as such it is difficult to assess.

The projections in Lithuania's draft updated NECP cover the period up to 2040. The analysis is based on the drivers recommended by the Commission, except for the EU-ETS carbon price, which is based on the International Energy Agency's World Energy Outlook results. The international fuel price assumptions are not clear. Key energy indicators (e.g., final energy consumption and renewable energy shares) are generally aligned with official statistics. It is not possible to evaluate the reliability of the data sources (e.g., techno-economic parameters) assumed for the WEM/WAM scenarios. Overall, it is not possible to evaluate whether the analysis is suitable in assessing the expected impact of the draft updated NECP and the most important policies and measures Lithuania introduces in it.