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Assessment of the final national energy and climate plan of Lithuania

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1. SUMMARY

Lithuania's final integrated national energy and climate plan (NECP)¹ sets a 2030 target for **greenhouse gas (GHG) emissions** not covered by the EU Emissions Trading System (non-ETS) of -9% compared to 2005, in line with the Effort Sharing Regulation (ESR²). According to the plan, with the implementation of all planned policies, the non-ETS sectors (transport, agriculture and non-ETS industry) will achieve a reduction of -21% by 2030. While planned policies in the transport sector are well described, transport emissions are projected to increase towards 2030. If needed, Lithuania plans to cover up to 6.5 million t CO₂ eq. reduction needs in effort sharing sectors by using credits from the land use, land use change and forestry (LULUCF) sector, in accordance with the ESR.

Lithuania's **renewable energy** contribution to the EU-level target for 2030 is 45% of gross final energy consumption in 2030. This is considered sufficiently ambitious and above the minimum share of 34% resulting from the formula in Annex II to Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action (the Governance Regulation³). The plan includes a detailed description of the planned measures.

On **energy efficiency**, Lithuania's contribution to the EU target is of modest ambition⁴, though it was revised upwards in the final plan. It is expressed in terms of primary and final energy intensity and should be 1.5 times lower in 2030 compared to 2017. This contribution translates into 5.5 Mtoe for primary energy and 4.5 Mtoe for final energy consumption. Lithuania provided information on the planned and existing measures, underpinned with estimated impacts mainly targeting the building and transport sectors but also industry. The final NECP provides many elements for buildings. Lithuania has not yet submitted its long-term renovation strategy.

In its plan, Lithuania sets objectives for **energy security**, notably on diversifying sources, as well as for renewables and energy efficiency promotion.

Regarding the **internal energy market**, the final plan includes several policy objectives, notably on the phase-out of retail price regulation, the non-discriminatory participation of new market participants and the promotion of different flexibility sources. The planned level of electricity interconnection by 2030 is 111%.

National objectives and funding targets related to **research, innovation and competitiveness** to support Energy Union priorities build on the national energy independence and smart specialisation strategies. The country aims to reach a spending level of 2% in research and innovation (R&I) by 2030.

¹ The Commission publishes this country-specific assessment alongside the 2020 Report on the State of the Energy Union (COM(2020)950) pursuant to Article 13 of Regulation (EU) 2018/1999 on Governance of the Energy Union and Climate Action.

² Regulation (EU) 2018/842 of the European Parliament and of the Council of 30 May 2018 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013.

³ The Commission's recommendations with regard to the Member States' renewable ambitions are based on a formula set out in this Regulation. The formula is based on objective criteria.

⁴ In accordance with the methodology as illustrated in SWD(2019) 212 final.

The estimated overall amount of **public and private investment** for the period 2021-2030 is EUR 14.1 billion. The identified sources of funding are EU funds and other external sources (50%), state funding (21%) and the private sector (29%). The Commission estimates that the investment needs correspond to average annual investments of around 3% of GDP⁵. The largest investment categories are for transport and energy efficiency investments.

The final plan includes a list of **energy subsidies** and the actions undertaken and planned to phase these out, in particular for fossil fuels. The list on fossil fuel subsidies appears to be in line with recent Commission analyses on energy subsidies. A plan is presented to phase out distortive tax incentives for fossil fuels by 2025.


On **energy poverty**, the NECP reports the number of households at risk of energy poverty and sets specific and measurable objectives to reduce it, including the reduction of the share of the population unable to keep home adequately warm to less than 23% by 2025 and to 17% by 2030. The plan provides clear objectives and policies for reducing energy poverty and intended impacts.

The final NECP provides information on the interactions with **air quality** and **air emissions policy** and impacts on air pollution from different scenarios, but does not specify the methodology used.

The final plan considers the **just and fair transition aspects** and provides information on the social, employment and skills impacts of the transition to a climate-neutral economy, in particular in relation to tackling energy poverty and the creation of new jobs due to changing energy market trends. Lithuania anticipates that the climate transition will have a positive employment impact, with a 1.56% increase in employment for 2020-2030 and 0.14% overall increase after 2030.




There are several **examples of good practices** in Lithuania’s final energy and climate plan, in particular the long-term goals for a carbon-neutral economy by mid-century, and the ambitious approach to deploying renewable energy, which is also seen as an important factor in strengthening country’s energy security.

The following table presents an overview of Lithuania’s objectives, targets and contributions under the Governance Regulation⁶:

	National targets and contributions	Latest available data (2018)	2020	2030	Assessment of 2030 ambition level
	Binding target for greenhouse gas emissions compared to 2005 under the Effort Sharing Regulation (ESR) (%)	7%	15%	-9%	As in ESR

⁵ Based on GDP in current numbers reported in Eurostat for the year 2019 of EUR 48.339 billion.

⁶ Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council.

	National target/contribution for renewable energy:				Sufficiently ambitious (formula: 34%)
	Share of energy from renewable sources in gross final consumption of energy (%)	24%	23%	45%	
	National contribution for energy efficiency:				
	Primary energy consumption (Mtoe)	6.3 Mtoe	6.5 Mtoe	5.5 Mtoe	Modest
	Final energy consumption (Mtoe)	5.5 Mtoe	4.3 Mtoe	4.5 Mtoe	Modest
	Level of electricity interconnectivity (%)	62%	62%	111%	N/A

Sources: European Commission, Energy statistics, Energy datasheets: EU countries; European Semester by country; Lithuania's final national energy and climate plan.

2. FINALISATION OF THE PLAN AND CONSIDERATION OF COMMISSION RECOMMENDATIONS

Preparation and submission of the final plan

Lithuania notified its final national energy and climate plan to the European Commission on 31 December 2019. The main strategic documents integrated into the NECP include the national energy independence strategy, the national strategy for the climate change management policy and the national air pollution reduction plan.

Regular parliamentary control was carried out during the preparation of the plan, and local and regional authorities were been involved in consultations. A **public consultation** on the NECP was held in two phases from December 2018 to May 2019⁷ and in November 2019⁸. Following discussions with the general public and stakeholders, the plan was complemented by alternative policy measures, presented in Chapter 3 for each sector as a separate set of measures. A separate summary of the public's views has not been submitted. The plan does not include references to a strategic environmental assessment under Directive 2001/42/EC.

To ensure consultations at regional level, the country discussed the draft plan in the context of the Baltic Energy Market Interconnection Plan (BEMIP) and the Baltic Council of Ministers, particularly its energy security and internal energy market aspects. The interconnection of the Baltic electricity system with the network of continental Europe is a priority project at EU level and was widely discussed.

Consideration of Commission recommendations

In June 2019, the Commission issued 11 recommendations to Lithuania with a view to finalising its NECP⁹. Annex II to this staff working document offers a detailed account on how the different

⁷ Through the *E.citizen* dedicated national consultation platform.

⁸ Through an online public consultation platform and a series of Climate Change Week events.

⁹ Commission Recommendation of 18 June 2019 on the draft integrated national energy and climate plan of Lithuania covering the period 2021-2030, C/2019/4415.

elements of Commission recommendations have been reflected in the final NECP. Overall, the final NECP **largely addresses** most of the Commission recommendations. The main changes introduced in the final plan are set out below.

On **greenhouse gas emissions in non-ETS sectors**, Lithuania **largely addressed** the recommendation to develop further its strategy for achieving its 2030 greenhouse gas target for sectors not covered by the EU emissions trading system. That recommendation included specifying the role of the land use, land use change and forestry sector and further defining the planned policies. The final plan provides reduction targets for the sub-sectors, but without fully specifying how the reduction will be achieved in some of the sectors.

On **renewables**, Lithuania **largely addressed** the recommendation to underpin the welcomed 2030 renewables ambition level by detailed and quantified policies and measures and to include an indicative trajectory. The final plan provides detailed trajectories and planned capacities in absolute values for each technology, sector and subsector. The planned measures are described in great detail; measures to implement renewable energy communities and renewable self-consumption have also been included. That said, the approach for the uptake of electrification and the use of biofuels in the transport sector could be further detailed.

On **energy efficiency**, Lithuania **largely addressed** the recommendation to update and scale up energy efficiency policies and measures. In particular, Lithuania has provided more detail on energy savings from the proposed new and existing energy efficiency measures intended to achieve its 2030 contribution. Lithuania provided information on the planned and existing measures, underpinned with estimated impacts mainly targeting the building and transport sectors, and also industry. Lithuania's NECP also contained information on the energy savings obligation under Article 7 of the Energy Efficiency Directive (Directive 2012/27/EU), even though some key details are missing from the plan - notably on the calculation methodology, additionality, materiality and monitoring and verification of the energy savings claimed. More specifically, on energy efficiency in buildings, information on some mandatory elements were provided, such as a description of indicative milestones for 2030 and 2050 and wider benefits, though only to a certain extent. The long-term renovation strategy has not been submitted yet.

On **energy security**, Lithuania **largely addressed** the recommendation to specify the measures supporting its energy security objectives and to clarify the role of gas. In particular, clearer objectives are set out for the diversification of sources, as well as for renewables and energy efficiency promotion. The plan also explores the possibility of using liquefied natural gas (LNG) from different supply routes. Finally, the role of gas is better explained.

On the **internal energy market**, Lithuania **largely addressed** the recommendation to set clear objectives, milestones and timelines. In particular, the final plan better outlines the reform of the electricity market, including the objective to phase out retail price regulation and the intention to increase the liquidity of the gas market by further regional integration. The plan also promotes the participation of all resources, better integration of renewables, and favours the active role and the protection of prosumers and consumers, including digitalisation. However, the plan does not specify measures ensuring flexibility and electricity generation adequacy, such as additional measures on demand response and storage.

On **research, innovation and competitiveness**, Lithuania **partially addressed** the recommendation to clarify the national objectives and funding targets. More specifically, the timeline and policies and support measures post-2023 remain to be further developed.

Lithuania **largely addressed** the recommendation to strengthen **regional cooperation**. In particular, the final plan fully recognises the importance of the regional dimension in reaching EU energy and climate goals, particularly for energy security and the implementation of the internal energy market. Regional cooperation aspects are covered across all relevant parts of the plan, in particular under the relevant parts of the national objectives and targets chapter, and in the policy and measures chapter.

On **investment needs** and mechanisms and funding sources to leverage them, Lithuania **largely addressed** the recommendation to extend the analysis of investment needs and provide details on funding sources. Specifically, the plan provides a complete overview of financing needs and details of public and EU funding, but does not provide sources of private funding.

Lithuania **largely addressed** the recommendation to provide a list of all energy subsidies, actions undertaken and plans to **phase out energy subsidies, in particular for fossil fuels**. In particular, a qualitative catalogue of 13 fossil fuel energy subsidies has been included in the plan, without however providing figures of the overall amounts of subsidies per category. Lithuania has outlined a phase-out plan for several of these tax incentives for fossil fuels by 2025.

Lithuania **largely addressed** the recommendation to complement the **analysis on air quality**. Specifically, the plan includes a presentation of the projected impacts of the proposed measures on each of the air pollutants regulated under the NEC (National Emission reduction Commitments Directive¹⁰). The relevant methodology is, however, lacking.

Finally, Lithuania **largely addressed** the recommendation to better integrate **just and fair transition aspects** and further develop its approach to addressing **energy poverty** issues. Lithuania provided targets, more policies and measures, as well as an impact assessment of the implementation of its plan on energy poverty. However, the concept of just transition is not mentioned, and the social impact of tackling carbon-intensive industries should be further addressed.

Links with the European Semester

In the context of the European Semester framework for the coordination of economic policies across the EU and of the country report 2019¹¹, Lithuania received one country-specific recommendation¹² on climate and energy, calling on it to focus investment-related economic policy on innovation, energy and resource efficiency, sustainable transport and energy interconnections, taking into account regional disparities. In the 2020 country report¹³ adopted on 20 February 2020, the Commission found that Lithuania had achieved limited progress on this recommendation, while acknowledging some progress on energy interconnections.

Due to the COVID-19 crisis, the European Semester country-specific recommendations for 2020 addressed Member States' responses to the pandemic and made recommendations to foster economic recovery. In particular, they focused on the need to start mature public investment

¹⁰ Directive (EU) 2016/2284

¹¹ The Annex D to the 2019 Country report also sets out priority investments for the 2021-2027 cohesion policy, substantially contributing to the clean energy transition.

¹² Recommendation for a Council Recommendation on the 2019 National Reform Programme of Lithuania and delivering a Council opinion on the 2019 Stability Programme of Lithuania, COM(2019) 515 final.

¹³ Commission staff working document, Country Report Lithuania 2020, SWD/2020/514 final.

projects as soon as possible and promote private investment, including through relevant reforms, notably in the digital and green sectors. In this context, Lithuania received a country-specific recommendation¹⁴ stressing the importance of focusing investment on the green and digital transition, in particular on the coverage and take-up of very high-capacity broadband, on clean and efficient production and use of energy and on sustainable transport.

The Governance Regulation requires Member States to ensure that their national energy and climate plans take into consideration the latest country-specific recommendations issued in the context of the European Semester. Lithuania's national energy and climate plan has the potential to support the implementation of the European Semester recommendations, as it identifies the necessary investment needs and the financial resources to meet them.

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

Decarbonisation

Greenhouse gas emissions and removals

The NECP includes Lithuania's 2030 binding national target for non-ETS greenhouse gas emissions. Apart from the short-term target, it also includes Lithuania's indicative mid-term GHG emissions reduction target (by 2040) of -70% compared to 1990 and the long-term target (by 2050) of -80% compared to 1990. A further 20% will be absorbed by the LULUCF carbon sink. Lithuania will thus achieve net-zero GHG emissions by 2050.

According to the plan, in a 'with existing measures' (WEM) scenario, the non-ETS sectors (transport, agriculture and non-ETS industry) would increase emissions by 6% compared to 2005. With the implementation of all planned measures, the plan projects an emissions reduction of -21% by 2030. The plan indicates that these policies depend on expected funding from EU and national sources, and implementation is therefore uncertain. The waste management sector is projected to achieve a reduction of -40% as compared to 2005, whereas the small combustion plants not covered by the EU ETS will deliver a reduction of -15%.

The plan provides projections on several LULUCF indicators and categories. Based on these projections and on the application of the LULUCF accounting rules, Lithuania plans to generate LULUCF credits amounting to 6.2Mt/y between 2021 and 2025, and 5.3Mt/y between 2026 and 2030; the plan states that part of these credits can be used to meet the reduction targets set under the Effort Sharing Regulation.

Lithuania has not set a specific target for emission reductions in the **transport** sector as part of the non-ETS sector target. However, Lithuania plans efficiency gains in the vehicle fleet and in the transport system, increased use of alternative fuels (including liquefied natural gas and biomethane), innovative transport technologies, as well as electrification of railways and taxation

¹⁴ Recommendation for a Council Recommendation on the 2020 National Reform Programme of Lithuania and delivering a Council opinion on the 2020 Stability Programme of Lithuania, COM(2020) 515 final.

based on the polluter pays principle. Electromobility and the underpinning charging infrastructure is supported by purchase incentives and public procurement; the concrete status of the targets for 2030 as presented in the scenario analysis in the plan is not clear. Over 46 000 electric vehicles are expected by 2025¹⁵. Plans for supporting LNG use in road and maritime transport are also mentioned, as well as financial support for biomethane use in transport, blending obligations for biomethane and development of infrastructure for biomethane.

Measures for other modes of transport besides road transport, are addressed unevenly: several measures are proposed for inland waterways, and further electrification of rail is considered, whereas measures in aviation are not detailed. Biofuels' contribution to the reduction in emissions is taken into account, with steps to promote the increase in the share of renewables in transport (RES-T) with higher mandatory blending rates, but measures are described in general terms and non-specific targets are presented. The plan mentions measures that contribute to more efficient organisation of the **mobility system** and thus towards improved energy efficiency and emissions reductions, e.g. investments in infrastructure, incentives for the use of combined freight transport, sustainable urban mobility plans and promotion of eco-driving.

The plan considers **LULUCF and agriculture** and provides a comprehensive list of measures for the two sectors, including indication of allocated budget and mitigation potential. The focus is on precision farming, training of farmers and improved landscape management. The plan refers to the common agricultural policy as an important support instrument. For **forestry**, the plan addresses synergies between mitigation and adaptation objectives and policies.

The plan recognises the country's vulnerability to climate change and the relevance of climate resilience for the achievement of mitigation objectives. It describes **adaptation** measures in line with the national adaptation strategy, in many cases including resources and policy owners. Numerical adaptation objectives are specified, going as far as 2050.

The plan contains the existing and planned policy measures in the **waste** sector up to 2030. At least a 40% GHG emission reduction compared to 2005 is to be achieved in the sector through waste reduction and efficient waste management.

The plan also considers the product use and fluorinated gas sector, notably referring to the implementation of the F-Gas Regulation. Lithuania has introduced requirements for fluorinated gases, which will reduce total emissions of fluorinated gases by two thirds in 2030 compared to 2014 levels.

Lithuania notified its long-term strategy to the Commission on 14 January 2020. Lithuania aims to achieve climate neutrality by 2050. This objective covers GHG emitted in all sectors of the economy; natural sinks will compensate for the remaining emissions most difficult to abate. The long-term strategy is missing some elements required by Article 15 of the Governance Regulation, in particular sectoral emission reduction objectives.

Renewable energy

The national contribution to the 2030 EU renewable energy target is specified in the plan; the **renewable share** is set at 45% in gross final consumption of energy in 2030¹⁶. This is considered sufficiently ambitious as it is above the share of 34% by 2030 that results from the formula in

¹⁵ From the current level of over 1330 (2019 data)

¹⁶ Lithuania has already achieved a share of renewables above its national 2020 target level and agreed on a statistical transfer of renewable energy to another Member State in 2017.

Annex II to the Governance Regulation. The intention is to achieve this by organising neutral auctions and through widespread deployment of small-scale renewable energy installations owned by individual energy consumers and communities. In heating, the share of renewables is to rise to 67.2% by 2030 from the current 47.3%. In district heating, which supplies 53% of the country's heat demand, and 76% in cities, the planned renewables share for 2030 is 90%. In transport, Lithuania aims to reach a 15% renewables share. The added indicative trajectory reaches all reference points¹⁷.

In the **electricity** sector, Lithuania aims to cover a 45% share of its electricity consumption from renewable energy sources by 2030. It also projects that at least 30% of consumers will generate electricity for their own use. Wind energy is expected to be the main source of electricity generation, accounting for at least 70%, while solar energy is estimated to account for 3%, biofuels 9%, hydropower 8% and biogas 2% by 2030.

For **heating and cooling**, Lithuania's plan indicates a share of 67.2% of renewables and 90% for district heating. This is in line with the indicative 1.3 and 1 percentage points calculated as annual averages for 2021-2025 and 2026-2030 respectively, including the role of waste heat, which will be one of the sources for transforming the district heating sector. The increase in the share of renewables in heating and district heating and cooling actually surpasses the requirements to have an annual average increase of at least 0.65 percentage points in overall heating.

When setting the **transport** target in the final plan, as required in Articles 25-27 of Directive 2018/2001¹⁸, the strategy for reaching the target of 15% renewables in transport by 2030 is based on diversification of fuels and integration of alternative fuels by reducing dependence on imported fossil fuels. However, more detail could be provided on the approach for the uptake of electrification and the use of biofuels in the transport sector. The 2020 target of 10% will be missed by approximately 5 pp.

Energy efficiency

Lithuania's **national contribution for energy efficiency** is expressed in terms of primary and final energy intensity and should be 1.5 times lower in 2030 than in 2017. This national contribution does not clearly translate into absolute values of energy consumption, but according to the WAM scenario projections in 2030 primary energy consumption should reach 5.5 Mtoe and final energy consumption 4.5 Mtoe.

The plan provides descriptive information on **policies and measures** beyond 2020 targeting mainly buildings and transport sectors, as well as industry sector. Cross-cutting policies such as taxation are to play a key role, with 6 TWh energy savings expected to be achieved from various excise duties applicable to fuels. The existing policies have an estimated impact of energy savings of 22 TWh and for new policies of 21 TWh. These policies and measures are considered sufficient to achieve the EU energy efficiency target for 2030, given that they focus on priority areas in the context of the clean transition, such as renovation of buildings (both private and public) with a priority focus on residential buildings.

¹⁷ Pursuant to Article 4(a)(2) of Regulation 2018/1999.

¹⁸ Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources.

Lithuania notified the Commission of the cumulative amount of 27.3 TWh energy savings to be achieved over the period 2021-2030 under Article 7 of the Energy Efficiency Directive¹⁹. This will be achieved via various policy measures. Article 7 notification is, however, not entirely complete. Under Article 5 of the same Directive, Lithuania has set an obligation (in line with the requirement of 3%) to renovate by 2030 around 510 000 m² of the floor area of central government buildings annually.

Lithuania has provided additional information on new policies and measures to reap the potential for energy efficiency savings in the buildings sector. The plan specifies that by 2030 around 5 000 multi-apartment buildings, or 750 000 m² in building area, are to be upgraded to class C energy performance level, with estimated energy savings at 5.5 TWh. Lithuania also aims to renovate about 960 000 m² of public buildings area by 2030 (and upgrade it to class C performance level).

The plan further indicates measures for the modernisation of indoor heating and hot water systems in multi-apartment buildings and outlines measures for reducing energy poverty. The plan also mentions that further measures and policies will be determined in the long-term renovation strategy under the Energy Performance of Buildings Directive which has not been submitted yet.

Energy security

Maintaining high levels of security of supply is a priority in the ongoing transformation of the energy system, with the objectives by 2030 of 45% renewables powered **electricity** and increasing the share of domestic renewable energy for electricity generation to 70% to replace imports. By 2050, domestic renewable electricity should account for 100% of electricity generation. When considering risks, the plan takes into account the **plans of the other connected Member States** and elaborates on a number of projects that focus on interconnectors with neighbouring countries for both gas and electricity. However, the generation capacities of the neighbouring countries are not sufficiently taken into account.

As regards **diversification of sources and routes**, the plan specifies measures and key objectives for diversification and to reduce import dependency for gas and electricity, but not for oil.

The plan envisages further measures and investments in **storage** of electricity, including batteries and network infrastructure, as key to improving security of energy supply. The plan refers to cybersecurity in the energy sector, notably from the research, innovation and competitiveness perspective. The planned policies and measures are considered credible in relation to the achievement of the objectives. Proposed policies and measures are consistent with the other dimensions and are in line with future projections and objectives beyond 2030.

The plan makes adequate links with the **emergency plans** for gas and electricity provided for by the applicable sectoral rules.

Internal energy market

The plan states that Lithuania's **interconnectivity level** is already 62% and the country aims to increase it to 111% by 2030. This high level is due to the fact that the three Baltic countries' electricity systems are already interconnected (the interconnectivity at regional level for the three Baltic countries is 23%), while further connections with the Nordic electricity market are either

¹⁹ Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency as amended by Directive (EU) 2018/2002.

completed or are being considered. The main objective for the electricity sector is the synchronous operation of the Baltic countries' power system with the continental European electricity network (CEN). To this end, additional electricity infrastructure is being developed. These projects benefit from the 'project of common interest' label. As part of this project, Lithuania is developing a second interconnection with Poland, which is expected to be operational by the end of 2025. The plan also includes an analysis on how peak demand affects the level of electricity interconnectivity in 2030 and the need for infrastructure is included.

Given the electricity sector target of 45% renewable electricity in 2030, the plan provides an overview of the development of the different sources of **flexibility** that are necessary to integrate the rising share of renewable energy into the electricity system. The plan reflects the challenge of generation adequacy in the context of the 100% renewable electricity target for 2050, and makes provision for an additional study particularly focusing on this challenge. The plan also describes more immediate measures such as the introduction of a capacity mechanism.

The plan provides a sufficient overview of current **market conditions** for gas and electricity, including levels of competition and liquidity of markets. The final plan includes policy objectives and measures related to the internal energy market. For examples, the plan includes an objective to phase out retail price regulation and measures to ensure the non-discriminatory participation of new market participants and different flexibility sources in all energy markets such as energy storage, including batteries. These measures are considered credible in relation to the achievement of the objectives. Proposed policies and measures are consistent with the other dimensions and correspond with future projections and objectives beyond 2030. Moreover, the plan sets as a priority market integration in coordination with neighbouring countries – the Baltic countries and Finland – for example, through gas market regionalisation or merger).

The plan provides a sufficient overview of the current **retail market conditions** for gas and electricity. Issues insufficiently addressed in the retail market dimension are real-time price signals and distributed generation. **Flexibility** still requires more clarity. Policies and measures on the implementation of the issues mentioned are listed in user-friendly tables but lack concreteness and assurances on actual implementation.

Aspects of a **just transition** to a climate-neutral economy are well integrated throughout the plan, which also presents the impact of the WAM scenario on employment in different sectors, as well as shifts in sectors. It is estimated that unemployment will increase in the short term as an effect of these shifts but result in a small decrease in the post-plan period (2031-2040). Average household incomes are estimated to increase by around 2% in the WAM scenario (0.3% in the post-plan period). Energy poverty is well integrated into the plan. Lithuania reports the second highest number in the EU of households affected by **energy poverty**: 27.9% in 2018. The plan sets a goal to reduce energy poverty in Lithuania to 23% by 2025 and to 17% by 2030, and to reduce the share of households that spend a large share of their income on energy from 17.1% in 2016 to 10% in 2030. Energy poverty is discussed in the context of social impacts, along with AROPE²⁰ and household income developments. The policies and measures to achieve this goal are wide-ranging and cover energy efficiency, energy prices and consumer education. They are considered credible in relation to the achievement of the target. However, the timeline for implementing the policies and measures is rather vague. Additionally, the plan elaborates on

²⁰ AROPE – at risk of poverty or social exclusion composite indicator.

hidden energy poverty²¹ which, according to the Lithuanian Department of Statistics, affects 14.9% of Lithuanian households.

Research, innovation and competitiveness

Lithuania's national objective is to go from being an energy technology importer to an exporter. This overall goal has been translated into targets and actions set out in two major national strategies: the national energy independence strategy (adopted in 2018) and the smart specialisation strategy (2014-2020, with target values for 2023). Both strategies include a high level of detail on actions and appropriate budget provisions, which are proportionate to their objectives and qualitative and quantitative targets. Therefore these efforts are considered credible.

Funding targets are set for the R&I sector as a whole (1.9% of GDP by 2023 against 1.04% in 2015). Even though Lithuania does not identify R&I energy specific targets, the plan presents a number of interventions running under different programmes relevant for the energy R&I sector. The cumulative budget of these programmes adds up to more than EUR 1 million for the period 2018-2023, including both national and EU public resources. Overall, the measures are fairly specific and the budget is considerable. However, the fact that they spread across many different 'intervention areas' may constitute some risk for the overall impact in the energy sector. The programmes and measures presented are consistent with the objectives of EU energy and climate policy.

According to its NECP, Lithuania considers hydrogen as a promising area for energy innovation and an opportunity for acquiring new energy competences. According to the NECP, the increasing flexibility needs could be covered, next to other options like energy storage, by hydrogen-based solutions (power-to-X).

As regards **competitiveness**, Lithuania's priorities include the digitalisation of industry, industrial transformation towards a circular economy and further integration of its national industries into European strategic value chains. The most relevant strategic value chains are: (i) batteries; (ii) interconnected, clean and self-contained vehicles; and (iii) the low carbon industry and hydrogen technologies and systems. The plan includes specific measures to achieve the above-mentioned national priorities on competitiveness; these include specialisation measures and measures to foster innovation in business and the public sector. The measures are consistent with the national objectives on competitiveness.

Cooperation with the **strategic energy technology (SET) plan** is broadly addressed. Currently, Lithuania does not participate actively in the SET plan framework, except on nuclear safety. However, nine further SET plan areas are recognised in the NECP as possibly relevant for achieving the country's energy R&I ambition.

On energy patents, Lithuania reported that 'The Lithuanian Energy Institute [...] has a total of 15 patents, most of them in the area of hydrogen use'. The plan does not include any reference to private R&I spending.

²¹ The part of the population whose absolute energy expenditure is below half the national median (source: EPOV).

4. COHERENCE, POLICY INTERACTIONS AND INVESTMENTS

The final NECP attempts to establish interactions between different policies and measures, in particular for the non-ETS sector, energy efficiency and renewable energy, with GHG savings provided for some policies and measures. The plan also clearly acknowledges the importance of renewable energy and energy efficiency measures for energy security. The country aims to replace electricity imports by domestic renewable electricity (reaching 70% of electricity by 2030 and 100% by 2050), with the share of electricity to increase to 80% in final energy consumption by 2050.

The need to preserve **biodiversity** and reduce the vulnerability of **ecosystems** is mentioned in the plan. However, when referring for instance to **bioenergy** and the sustainable supply of **biomass**, the plan does not include analysis of the synergies and trade-offs between climate and biodiversity policies and action (e.g. the role of ecosystem services for mitigation and adaptation).

The plan does provide information on the interactions with **air quality and air emissions policy**. It presents projected impacts of the proposed measures (broken down by sector) on each of the air pollutants regulated by the NEC (National Emission reduction Commitments)²² Directive. Information on the methodology used is, however, missing. Links between the NECP and the national air pollution control programme (NAPCP) are mentioned in the NAPCP, but it is not clear whether the air projections used in that programme are consistent with the ones used in the NECP.

Although the narrative on the **circular economy** has been improved in the final plan, notably in the section on research and innovation, it could be further analysed. Further quantification efforts would be welcome, in line with the most recent scientific evidence. Lithuania is currently preparing a project on the transition to a circular economy, the results of which are due to be available in 2021. The national sustainable development strategy is not mentioned, whereas the national waste prevention programme was mentioned and briefly described. In addition, the plan estimates trajectories on **bioenergy demand and on biomass supply**, broken down by feedstock and origin, and includes an assessment of its sources. The impact of forest biomass on the LULUCF sink is considered to be not significant; the plan is to use only logging waste for energy production.

The NECP does not consider how climate **adaptation** fits in with the other dimensions of the plan. For example, under energy security there is no information on how climate change risks might affect energy supply (e.g. wildfires and storms destroying biomass resources and power networks), even though decarbonisation includes adaptation measures for the energy sector.

The plan shows a change in emissions of air pollutants. The implementation of the plan's measures should significantly reduce fuel consumption in road transport and, to a lesser extent, the combustion of fuels in electricity and heat production, industry, services, agriculture and households. Landfilling and consumption of inorganic nitrogen fertilisers should also be significantly reduced. However, the development of rail and inland navigation is expected to increase fuel consumption in these sectors. There is also a slight increase in the burning of natural gas in gas pipeline compressor stations.

²² Directive (EU) 2016/2284

The plan describes **investment** needs for the planned policies and measures, although the methodology for assessing these is not explained. The overall investment figures add up to EUR 14.1 billion from 2021 to 2030. Of these, almost EUR 10.8 billion is for GHG reduction measures, while the rest, around EUR 3.3 billion, is for adaptation measures. The Commission estimates that the investment needs corresponds to average annual investments of around 3% of GDP²³. The largest investment categories are for transport and energy efficiency investments. The need for public funding is estimated at EUR 9.76 billion from 2021 to 2030. Around 21% are expected to be funded by national and municipal budgets and electricity and heat tariffs, while around 50% from EU funds, e.g. the European Regional Development Fund and the Cohesion Fund, as well as the Modernisation Fund (8 million allowances in 2021-30, corresponding to around EUR 159 million at the current carbon price²⁴), and other external sources. The gap between the investment need and estimated public funding (29% of investment needs) will be covered by private funds. There is no information provided on the sources of private funding, nor of how the policies and measures will attract the necessary investments. The financing needs are stated as preliminary and are to be updated in strategic planning documents. Market risks and barriers are not mentioned in the plan. Nor does it mention the use of any transfers of annual emissions allocations (AEAs) under the Effort Sharing Regulation or the use of revenues from auctioning within the EU ETS.

The NECP provides a good summary of the estimated **macro-economic impact** of the planned policies and measures.

The description of existing **energy subsidies** refers only to fossil fuels. A list of the tax incentives for fossil fuel subsidies is presented and appears to be based on internationally used definitions. The timeline for phasing out energy subsidies is mentioned in the plan, with the exclusion of subsidies considered essential for social well-being.

The **just and fair transition** aspects are well integrated into the plan, which considers the circular economy's social impact (by tackling energy poverty) and its effect on employment (creation of new jobs due to the changing energy market tendencies). However, the plan could still benefit from having a more specific list of measures and a timeline for their implementation.

While the importance of energy efficiency in the entire energy chain is highlighted throughout the plan, further information on the implementation of the '**energy efficiency first**' principle would be desirable. The building sector is an area where synergies with other dimensions could be explored.

The final version of the plan partially complies with **data transparency** requirements, while the recommendation on the **usage of European statistics** is largely addressed.

²³ Based on GDP in current numbers reported in Eurostat for 2019 of EUR 48.339 billion.

²⁴ The figure is based on the amounts established in Directive (EU) 2018/410 and is subject to various uncertainties, such as the possibility to transfer to the Modernisation Fund allowances available pursuant to Article 10c.

5. GUIDANCE ON THE IMPLEMENTATION OF THE NATIONAL ENERGY AND CLIMATE PLAN AND THE LINK TO THE RECOVERY FROM THE COVID-19 CRISIS

Lithuania needs to swiftly proceed with implementing its final integrated national energy and climate plan, notified to the Commission on 31 December 2019. This section provides some guidance to Lithuania for the implementation phase.

This section also addresses the link between the final plan and the recovery efforts from after the COVID-19 crisis, by pointing at possible priority climate and energy policy measures Lithuania could consider when developing its national recovery and resilience plan in the context of the Recovery and Resilience Facility²⁵.

Guidance on the implementation of the national energy and climate plan

Lithuania's national energy and climate plan sets a 2030 target for **greenhouse gas (GHG) emissions** not covered by the EU Emissions Trading System (non-ETS) of -9 % compared to 2005, in line with the Effort Sharing Regulation (ESR). To attain this reduction, the additional measures specified in the plan would need to be swiftly implemented.

Lithuania's contribution to the EU level 2030 renewable energy target is sufficiently ambitious when compared to the share resulting from the formula in Annex II of the Governance Regulation while in energy efficiency its contribution is of modest ambition. Lithuania's plan therefore leaves still scope to further develop and reinforce policies and measures on both renewables and energy efficiency as to contribute more to the EU climate and energy targets and strengthen the green transition.

On **renewables**, Lithuania committed to increase the share of renewables in gross final energy consumption to 45% by 2030. The ambitious policy objectives would require swift and effective implementation of the planned policies and measures. This is particularly the case in the transport sector, where such action would be needed to raise the current low level of renewables and shift to advanced biofuels and electromobility. Lithuania would benefit from ambitious offshore wind development. Specific policy instruments would still need to be put in place to ensure successful achievement of the renewable heat objectives by 2030. Measures to increase renewables in buildings could be coordinated with renovation programmes. In that context, Lithuania would benefit from diversifying the energy mix in the heating sector, apart from biomass, maximising the role of waste heat, and maintaining constant vigilance on the sustainability of biomass.

On **energy efficiency**, Lithuania would benefit from introducing additional policies and measures given its high untapped energy savings potential, especially in the transport and building sectors. To achieve a higher impact, those measures could build on existing policies and instruments, which have proved successful so far. A detailed elaboration of all the elements required by Annex III to the Governance Regulation would be beneficial to ensure that Lithuania meets the

²⁵ On 17 September 2020, the Commission has put forward the Annual Sustainable Growth Strategy 2021 (COM(2020) 575 final), as well as guidance intended to help Member States prepare and present their recovery and resilience plans in a coherent way, without prejudice to the negotiations on the proposal for a Regulation on the Recovery and Resilience Facility in the European Parliament and the Council (Commission Staff Working Document. Guidance to Member States – Recovery and resilience plans, SWD (2020) 205 final).

energy saving obligation under Article 7 of the Energy Efficiency Directive. Lithuania is also invited to: (i) ensure that the ‘energy efficiency first’ principle is properly implemented in energy-related policy and investment decisions; and (ii) make use of the green transition funding to finance energy efficiency, targeting in particular buildings renovation and transport sustainability and fully tapping the energy efficiency potential in the industry sector.

The improvement of energy efficiency in buildings has much potential for speeding up energy savings. Building on the momentum of the **Renovation Wave** initiative²⁶, there is scope for Lithuania to intensify efforts to improve the energy performance of the existing building stock with concrete measures, targets and actions with due attention to energy poverty. Further support to the renovation of public and private buildings could be provided with increased public funding and by leveraging EU and national budgets with private money, combining grants, lending, guarantees and loan subsidies. Lithuania is expected to provide a robust and comprehensive long-term renovation strategy, in accordance with Article 2a of the Energy Performance of Buildings Directive, which can contribute to the energy efficiency target and the recovery of the economy after the COVID-19 pandemic. The long-term renovation strategy is prescribed to define a roadmap for decarbonisation by 2050 with ambitious milestones for 2030 and 2040 and 2050, measurable progress indicators, expected energy and wider benefits, measures and actions to renovate the building stock, and a solid finance component with mechanisms for mobilising public and private investment.

As regards **energy security**, Lithuania is encouraged to concentrate on the swift implementation of all investments and measures required for the synchronisation with the European continental grid, together with Latvia and Estonia. When assessing resource adequacy in the electricity sector, Lithuania would also benefit from further developing the information on the generation capacities of the neighbouring countries. Finally, Lithuania might want to further develop concrete measures ensuring flexibility in light of its ambitious renewables target, such as additional measures on demand response and storage.

Concerning the **internal energy market**, Lithuania would benefit from a more detailed set of actions with a clear timeline to support further development of the retail electricity market and foster competition by digitising the energy system and empowering consumers. This includes measures on enabling system flexibility, demand response, storage, real-time price signals, consumer protection, energy communities and the non-discriminatory market participation of renewable energy. In line with Article 20 of Regulation (EU) No 2019/943, Lithuania proposed measures improving market functioning via a dedicated implementation plan notified to the Commission. A swift follow-up on such measures and on the Commission’s opinion²⁷ on this plan is crucial to support the required reforms.

As regards **research, innovation and competitiveness** Lithuania is invited to further develop the timeline beyond 2023 to ensure, among other goals, implementation of its ambitious renewable energy targets and the transition from being an energy technology importer to an energy technology producer and exporter. The measures in the NECP are fairly specific and the budget

²⁶ Communication ‘A Renovation Wave for Europe – greening our buildings, creating jobs, improving lives’, COM(2020)662 and SWD(2020)550.

²⁷ The Commission’s opinion was adopted on 30 April 2020. C(2020)2655final. https://ec.europa.eu/energy/topics/markets-and-consumers/capacity-mechanisms_en#commission-opinions-and-consultations

set for the R&I sector as a whole is considerable. However, the budget is spread across many different ‘intervention areas’, which may pose some risk for the overall impact in the energy sector.

Lithuania estimates that EUR 14.1 billion of additional **investment** until 2030 is needed to implement the national energy and climate plan. The Commission estimates that the investment needs correspond to average annual investments of around 3% of GDP²⁸. The largest investment categories are for transport and energy efficiency investments. Forward-looking stable policy frameworks are important to guide enterprises’ and households’ investment decisions and to incentivise frontloading investment also in the private sector.

Lithuania is invited to continue ongoing efforts on **regional cooperation** with a view to intensifying exchanges and initiatives that will facilitate the implementation of its national energy and climate plan, in particular as regards relevant cross-border issues. Lithuania’s active participation in the BEMIP High-Level Group, now with increased focus on offshore wind development in the Baltic Sea, is a very good example of effective regional cooperation²⁹. Lithuania is also invited to better exploit the potential of **multilevel climate and energy dialogues** to actively engage with regional and local authorities, social partners, civil society organisations, business community, investors and other relevant stakeholders and to discuss with them the different scenarios envisaged for its energy and climate policies.

Lithuania would also benefit from more rigorous analysis on the **just and fair transition** aspects, particularly by developing a more detailed assessment of the social, employment and skills impacts of its planned policies and measures, with due attention to the most affected sectors and territories.

Given the relatively high number of households at risk of **energy poverty**, it will be important to continue carefully monitoring the evolution of energy poverty and to develop targeted policies and measures to tackle the identified problems, including setting out the implementation timeline. Lithuania is encouraged to consult the Commission Recommendation of 14 October 2020 on energy poverty and its accompanying staff working document providing guidance on the definition and quantification of the number of households in energy poverty and on the EU-level support available to Member States’ energy poverty policies and measures. Energy poverty could also be addressed through specific support to social enterprises social economy by for applying socially innovative solutions (energy-awareness campaigns; retrain unemployed to energy poverty advisors; buy energy-saving appliances to rent out).

Lithuania is invited to extend and update reporting on energy subsidies and continue action to phase them out, in particular for fossil fuels. The green transition in Lithuania would receive a further boost from rapid phase-out of the **fossil fuel subsidies** identified in the NECP and recent Commission analyses. This would involve further development and implementation of concrete

²⁸ Based on GDP in current numbers reported in Eurostat for 2019 of EUR 48.339 billion.

²⁹ In this context, the Commission will help address related issues in a strategic manner in its upcoming Strategy for Offshore Renewable Energy by identifying key actions in the area of maritime planning, upscaling technologies, and a new approach to infrastructure planning and offshore renewables capacity building.

plans with associated timelines, coupled with measures to mitigate the risk of households' energy poverty.

For all investments implementing the national energy and climate plan, Lithuania is invited to ensure these are in line with national, regional or local plans for **air pollution reduction**, such as the National Air Pollution Control Programme (NAPCP), and relevant air quality management plans.

In implementing its plan, Lithuania is invited to make the **best possible use of the various funding sources available**, combining scaled-up public financing at all levels (national and local, as well as EU funding) and leveraging and crowding in private financing. An overview of EU funding sources which should be available to Lithuania during the forthcoming multiannual financing period (2021-2027), and EU funding addressed to all Member States and companies, is provided in tables 1 and 2 of annex I. For the forthcoming period, the European Council has committed to the mainstreaming of climate action into all EU programmes and instruments and to an overall target of at least 30 % of EU funding to support climate objectives. At the same time, EU expenditure should be consistent with the Paris Agreement and the 'do no harm' principle of the European Green Deal. At the EU level, funding will be available for Lithuania from the Innovation Fund and the Modernisation Fund too, based on revenues from the auctioning of allowances under the EU Emissions Trading System, as well.

Link to the recovery from the COVID-19 crisis

The vast majority of Member States' final national energy and climate plans were drafted before the COVID-19 crisis, and the present Staff Working Document assesses Lithuania's plan in that context. Nevertheless, the implementation of Lithuania's final integrated national energy and climate plan will need to fully take into account the context of the post-COVID-19 recovery.

In the context of the Recovery and Resilience Facility, which is expected to be operational on 1 January 2021, **the final plan constitutes a strong basis for Lithuania to design climate and energy-related aspects of its national recovery and resilience plan**, and to deliver on broader European Green Deal objectives.

In particular, **mature investment projects outlined in the plan, as well as key enabling reforms that address inter alia, investment-barriers, should be frontloaded as much as possible**. The link between investments and reforms is of particular relevance for the national recovery and resilience plans, to ensure a recovery in the short to medium term and strengthening resilience in the longer term. In particular, Member States' recovery and resilience plans should effectively address the policy challenges set out in the country-specific recommendations adopted by the Council.

In addition, **the Commission strongly encourages Member States to include in their recovery and resilience plans investment and reforms in a number of 'flagship' areas**³⁰. In particular, the 'Power up', 'Renovate' and 'Recharge and refuel' flagships are directly related to energy and climate action and to the contents of the final national energy and climate plans. Measures under the 'Reskill and upskill' flagship are also essential to foster the climate and energy transition in all Member States.

³⁰ Cf. Annual Sustainable Growth Strategy 2021 (COM(2020) 575 final), pp. 9-12.

In turn, the Recovery and Resilience Facility will provide opportunities to accelerate Lithuania's green transition while contributing to economic recovery. In order to follow the commitment of the European Council to achieve a climate mainstreaming target of 30% for both the multiannual framework and Next Generation EU, Lithuania's recovery and resilience plan will have to include a minimum of 37% expenditure related to climate. Reforms and investments should effectively address the policy challenges set out in the country-specific recommendations of the European Semester, and will have to respect the principle of 'do no harm'.

Based on Lithuania's final national energy and climate plan, and on the investment and reform priorities identified for Lithuania in the European Semester, **the Commission services invite Lithuania to consider, while developing its national recovery and resilience plan, the following climate and energy-related investment and reform measures:**

- Measures addressing energy efficiency and renewable energy in buildings, in particular through the modernisation of heating systems; measures addressing energy efficiency in industry; measures increasing renewable electricity production and supporting the implementation of the renewable energy targets; in cooperation with other concerned Member States, investments and related measures required for the synchronisation with the European continental grid by 2025;
- Measures promoting sustainable transport, including public transport at local, regional and national levels, through investments in e-mobility, the deployment of recharging infrastructure and alternative fuels, including advanced biofuels; measures aimed at the completion of Rail Baltica;
- Measures promoting a green tax reform, by increasing environmental taxes and cancelling tax exemptions, while taking into account distributional effects.

The above mentioned measures are indicative in nature and not meant to be exhaustive. They aim to orient reflections in the development of the national recovery and resilience plan. They do not prejudice the position of the Commission on the actions to be proposed. This position will, inter alia, need to comply with the agreed legislative text on the Recovery and Resilience Facility.

**ANNEX I: POTENTIAL FUNDING FROM EU SOURCES
TO LITHUANIA, 2021-2027**

Table 1: EU funds available, 2021-2027: commitments, EUR billion

Programme	Amount	Comments
Cohesion policy funds (ERDF, ESF+, Cohesion Fund)	6.1	In current prices. Includes funding for European territorial cooperation (ETC). Does not include amounts transferred to the Connecting Europe Facility.
Common agricultural policy – European Agricultural Fund for Rural Development, and direct payments from the European Agricultural Guarantee Fund.	5.5	In current prices.
Recovery and Resilience Facility	2.4	In 2018 prices. Indicative grants envelope, sum of 2021-2022 and estimated 2023 commitments. Based on the Commission’s summer 2020 GDP forecasts.
Just Transition Fund	0.2	In 2018 prices. Commitments both under the multi-annual financial framework (MFF) and Next Generation EU.
Modernisation Fund	0.2	Approximation: 7/10 of the allocations of ETS allowances to provide revenue to the Modernisation Fund tentatively allocated to Member States for 2021-2030 and assuming a carbon price of EUR 20 per tonne.
ETS auction revenue	0.1	Indicative: average of actual 2018 and 2019 auction revenues. The amounts in 2021 to 2027 will depend on the quantity and price of auctioned allowances.

Table 2: EU funds available to all Member States, 2021-2027, EUR billion

Programme	Amount	Comments
Horizon Europe	91.0	In current prices. Includes Next Generation EU credits.
InvestEU	9.1	In current prices. Commitments both under the multi-annual financial framework (MFF) and Next Generation EU. Includes the InvestEU fund (budgetary guarantee to public and private investment) and the advisory hub (technical advice). Does not consider appropriations available to beneficiaries through implementing partners, such as the European Investment Bank.
Connecting Europe Facility <ul style="list-style-type: none"> • Transport • Energy 	24.1 5.8	In current prices. The commitment for transport includes the contribution transferred from the Cohesion Fund. Excludes Connecting Europe Facility Military Mobility funding for dual use infrastructure.
Recovery and Resilience Facility	360.0	In 2018 prices. Non-allocated commitments for loans. Loans for each Member State will not exceed 6.8% of its gross national income.
Technical Support Instrument	0.9	In current prices.
Programme for Environment and Climate Action (LIFE)	5.4	In current prices.
European Agricultural Fund for Rural Development	8.2	In current prices. Commitments under Next Generation EU.
Innovation Fund	140.0	Approximation: 7/10 of the allocations of ETS allowances to provide revenue to the Innovation Fund for 2021-2030 and assuming a carbon price of EUR 20 per tonne.

Note to both tables

The figures provided by programmes under the EU budget include both the proposals under the forthcoming multiannual financial framework, and the reinforcement of these under the Next Generation EU instrument outside the EU budget.

The figures quoted in this document are based on the conclusions of the European Council of 17-21 July 2020. They however do not prejudice the outcome of the ongoing discussions between the European Parliament and the Council on the elements of the recovery package, such as the Multiannual Financial Framework, the sectoral programmes, their structure and budgetary envelopes, which will be concluded in accordance with their respective adoption procedure.

For most of the above funds, support to the climate and energy transition is one objective among others. However, for the forthcoming period, the European Council has committed to the mainstreaming of climate action into all EU programmes and instruments and to an overall target of at least 30% of EU funding to support climate objectives. EU expenditure should also be consistent with the Paris Agreement and the ‘do no harm’ principle of the European Green Deal.

Some of the programmes listed in Table 2 provide funding through open calls to companies, not public administrations.

ANNEX II – DETAILED ASSESSMENT OF HOW COMMISSION RECOMMENDATIONS HAVE BEEN ADDRESSED

Recommendations		Assessment	
Decarbonisation – GHG	Develop further its strategy for achieving its 2030 greenhouse gas target for sectors not covered by the EU emissions trading system of -9% compared to 2005. This includes specifying the role of the land use, land use change and forestry sector based on the accounting rules under Regulation (EU) 2018/841 and further defining the planned policies.	Largely addressed	The plan provides reduction targets for the sub-sectors and includes a solid overview of multiple initiatives, but it remains unclear how the reduction will be achieved in some of the sectors. In transport, for example, the projections show an increase rather than reduction. Lithuania does not set the LULUCF specific target, but it is incorporated into GHG targets.
Decarbonisation - renewables	Underpin the welcomed level of ambition of Lithuania’s 45% renewable energy share for 2030 put forward in the draft integrated national energy and climate plan as contribution to the Union’s 2030 target for renewable energy by detailed and quantified policies and measures that are in line with the obligations laid down in Directive (EU) 2018/2001 of the European Parliament and Council ³¹ , to enable a timely and cost-effective achievement of this contribution.	Fully addressed	The final NECP describes in detail and quantifies the measures to underpin the sufficiently ambitious overall 45% renewable energy share for 2030, and the equally ambitious sectoral targets for RES-electricity (45%), for overall RES-heating (50%) and RES-district heating (90%) and RES-transport (15%).
	Include an indicative trajectory that reaches all the reference points pursuant to Article 4(a)(2) of Regulation (EU) 2018/1999.	Fully addressed	Lithuania provides detailed trajectories that meet the reference points laid down in Article 4(a)(2) of Regulation (EU) 2018/1999.
	Put forward measures to meet the transport target set in its draft integrated national energy and climate plan and in line with Article 25 of Directive (EU) 2018/2001.	Largely addressed	The plan contains specific measures to promote electromobility, the use of alternative fuels and renewables (e.g. in public transport, rail electrification), by reducing dependence on imported fossil fuels, and through the development of charging infrastructures in the main cities and along the core trans-European road networks. Measures include supplier obligation, public procurement, tax and other incentives, traffic and other regulations and eco-driving. These measures target all main

³¹ Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (OJ L 328, 21.12.2018, p. 82–209).

			transport sub-sectors, including passenger cars, cargo and freight, waterways, vessels, ships and barges. Specific measures are detailed, but do not specifically provide figures for electrification and the use of biofuels and gaseous transport fuels for 2030. Some of the measures are still being prepared in the context of a draft law on alternative fuels, which should provide a clear long-term perspective for market participants, while focusing on the use of second generation advanced liquid and gaseous biofuels and the electrification of the vehicle fleet and rail system.
	Provide additional details on simplification of administrative procedures and on the enabling frameworks for renewable self-consumption and renewable energy communities, in line with Articles 21 and 22 of Directive (EU) 2018/2001.	Largely addressed	Lithuania included its measures on the simplification of administrative procedures, including the setting-up of contact points and simple notification for the installation of small electrical capacities up to 30 kW, which is higher than the required minimum level of 10.8 kW required in Renewable Energy Directive II. Enabling frameworks for self-consumption and renewable energy communities have been set up and specific measures are included in the plan.
Energy efficiency	Substantially increase the level of ambition towards reducing final and primary energy consumption in 2030.	Partially addressed	Lithuania has revised its ambition for energy efficiency upwards, including due to the improved modelling methodology.
	Propose more ambitious policies and measures that would deliver additional energy savings in order to reach the Union's 2030 energy efficiency target.	Largely addressed	The policy measures seem to be appropriate to deliver the level of ambition on energy efficiency. More detailed information is provided for policies and measures focusing on transport, households and industry.
	Provide more information on energy efficiency policies and measures, by indicating which ones will be continued after 2020, what new policies will be introduced after 2020 and what impacts they will have.	Largely addressed	The existing policies will deliver an estimated impact of 22 TWh, while the impact from new policies is expected to reach 21 TWh in 2030. Policies focus on priority areas in the context of the clean transition, such as renovation of buildings, while also targeting the transport sector (e.g. support scheme to promote electro mobility). However, information as regards the energy savings obligation (Art. 7 of Directive 2012/27/EU) lacks detail on some key elements of the calculation methodology (notably additionality, materiality, monitoring and verification of the energy savings claimed).

			On buildings, further details were provided in the final NECP. The long-term renovation strategy has not been submitted yet.
	In particular, consider putting in place additional energy efficiency measures targeting the transport sector.	Largely addressed	An objective of 1 600 ktoe primary and final energy consumption in transport is put forward for 2030, from 2 236 ktoe in 2020. Multiple measures are proposed regarding energy efficiency, especially for road and maritime (inland waterway) transport, as well as rail transport, however, measures in aviation are not detailed in the plan.
Energy security	Specify the measures supporting the energy security objectives on diversification and reduction of energy dependency,	Fully addressed	Clearer objectives are set for the diversification of sources, as well as for renewables and energy efficiency promotion. The plan also explores the possibility of using LNG from different supply routes. Finally, also the role of gas is better explained.
	Include measures ensuring flexibility, and electricity generation adequacy in light of the ambitious renewables target, such as additional measures on demand response and storage.	Partially addressed	The final plan promotes the participation of all resources, better integration of renewables, and favours the active role and protection of prosumers and consumers.
	Take into account the regional context and the actual potential of the interconnectors and of the generation capacities in the neighbouring countries when assessing resource adequacy in the electricity sector.	Partially addressed	The plan covers the connecting infrastructure but does not specify the generation capacities in the neighbouring countries.
Internal energy market	Define forward-looking objectives and targets concerning market integration, in particular measures to develop more competitive wholesale and retail markets, including progressing towards fully market based prices.	Largely addressed	The final plan better outlines the reform of the electricity market, including the objective of phasing out retail price regulation and the intention to increase the liquidity of the gas market by further regional integration. The final plan also promotes the participation of all resources, better integration of renewables, and favours the active role and the protection of prosumers and consumers, including digitalisation.
Research innovation and competitiveness	Clarify the national objectives and funding targets research, innovation and competitiveness, specifically related to the Energy Union, to be achieved between 2020 and 2030, so that they are readily measurable and fit for purpose to support the implementation of targets in the other dimensions of the integrated national energy and climate plan.	Partially addressed	The plan identifies relevant areas where R&I efforts are needed. Clear targets for R&I and competitiveness are set, although the timeline is not always consistent. R&I efforts are considered credible in relation to the achievement of the targets, particularly thanks to the described policies and support measures up to 2023. However, it is not clear which measures will support the

	Underpin such objectives with specific and adequate policies and measures, including those to be developed in cooperation with other Member States, such as the Strategic Energy Technology Plan.		objectives in the period until 2030. Lithuania mentions the SET plan but the Lithuanian authorities are not actively participating since 2014. Nevertheless, Lithuania endorsed the implementation programme on nuclear safety and are currently members of the appropriate implementation working groups (IWGs). Lithuania believes that it would be of great interest for them to participate in nine additional IWGs. The plan did not explain how SET plan contributes to reach Lithuania's national energy and climate objectives.
Regional cooperation	Intensify the already good regional cooperation arrangements between Baltic countries (Estonia, Latvia and Lithuania), extending them to new areas and broadening the geographic reach to include the Nordic countries (Denmark, Finland, Iceland, Norway and Sweden).	Largely addressed	Lithuania builds on a strong existing cooperation framework between the Baltic countries. The two main regional cooperation forums, which have been consulted on the NECP on a regular basis, were the BEMIP working group and the Baltic Council of Ministers. The draft national plan was also presented at the Nordic-Baltic Energy Conference both in 2018 and 2019. Cooperation with Nordic countries is highlighted in the plan in connection with the electricity market and research and innovation. The plan further elaborates on the forums for regional cooperation and extends collaboration into the research area.
	The focus of the regional exchanges should be on internal energy market and energy security areas, in view to the changes in the electricity systems accommodating higher shares of renewable electricity, which will increase electricity import/export and enhance the need for system flexibility, as well as the decarbonisation of the transport sector and regional cooperation in research.	Fully addressed	The plan (Ch.1.4) states that 'An important element of regional cooperation for Lithuania is the achievement of the EU energy and climate change objectives and the implementation of the Energy Union, mainly the energy security and internal energy market dimensions'. Through the dedicated BEMIP working group, Lithuania works with other Baltic countries on the development of an electricity and gas market. The necessity to connect regional electricity markets to manage the challenges of an increased share of renewables is understood, as the creation of the Single Baltic-Nordic balancing market shows. The plan also describes cooperation on energy security. Lithuania aims to deploy technologies for the management of international transport corridors and for the integration of transport modes.

Investments and funding sources	Extend its analysis of the investment needed to modernise its economy by reaching its energy and climate objectives, and provide further detail on the sources of that investment, including appropriate financing at national, regional and Union level.	Largely addressed	The recommendation to extend the analysis of investment needs has been fully addressed. The plan contains a complete overview of financing needs broken down by sector and connected to the various policies and measures. On the funding side, the recommendation has been largely addressed. An assessment of public and EU funding has been provided, as well as non-quantified details of which policies and measures the respective funds plan to finance. However, no details are provided on sources of private funding.
Energy subsidies	List all energy subsidies.	Partially addressed	The description of existing energy subsidies refers only to fossil fuels.
	List in particular fossil fuel subsidies.	Largely addressed	The final NECP represents an upgrade of the draft plan on energy subsidies. Lithuania has included a list of 13 subsidies in the form of tax incentives to promote fossil fuels, without providing figures of the overall amounts of subsidies per category.
	List actions and plans to phase out energy subsidies, in particular for fossil fuels.	Largely addressed	Actions and plans to phase out six fossil fuel subsidies are mentioned in the final plan. Part of the subsidies are considered to be necessary for social well-being (e.g. the exemption from excise duty of natural gas for household customers).
Air quality	Include an analysis of the interactions with air quality and air emissions policy, presenting the impacts on air pollution for the various scenarios, providing underpinning information, and considering synergies and trade-off effects.	Largely addressed	The plan provides information on the interactions with air quality and air emissions policy. The plan presents projected impacts of the proposed measures (broken down by sector) on each of the air pollutants regulated by the NEC Directive. Information on the methodology used is, however, lacking.
Just transition and energy poverty	Integrate just and fair transition aspects better, notably by providing more details on social, employment and skills impacts of planned objectives, and policies and measures.	Partially addressed	Lithuania has addressed the just transition recommendation in a rather general way, by looking at the difference between the base scenario and the measures to implement the plan scenario, and by mainly assessing the macroeconomic and social impact. However, the plan has a dedicated section on the assessment of potential impacts of its implementation for GHG emissions reduction and the energy system, including on employment, income and energy poverty. Although there is a target for the reduction of GHG emissions from industry (carbon-intensive industries), the socioeconomic impact of the measure is not

			sufficiently addressed.
	Further develop the approach to addressing energy poverty issues, including by specifying objectives and intended impacts of planned policies and measures as required by Regulation (EU) 2018/1999.	Fully addressed	In the final plan, Lithuania added a target for the reduction of energy poverty and provided more information on existing and planned measures and policies to alleviate energy poverty.