EUROPEAN
COMMISSION

Brussels, 18.6.2019
SWD(2019) 273 final

COMMISSION STAFF WORKING DOCUMENT

Assessment of the draft National Energy and Climate Plan of Romania

Accompanying the document

Commission Recommendation

on the draft integrated National Energy and Climate Plan of Romania covering the period 2021-2030

{C(2019) 4423 final}

Table of contents

1. SUMMARY

Main observations[1]

- ✓ The **Romanian draft integrated National Energy and Climate Plan** (NECP) is structured along the Energy Union dimensions and aims at a holistic approach thus providing a good basis for the development of a complete and coherent final plan. There are several references to the Energy Strategy 2019-2030 with a view to 2050 and the National strategy on climate changes and economic growth based on low-carbon emissions for the period 2016-2030, therefore the link of the NECP with these strategies and related policies and measures could be better clarified in the final plan.
- ✓ Romania could meet its **greenhouse gas emission** target in 2030 of -2 % compared to 2005 for sectors not covered by the EU Emissions Trading System (non-ETS), as set out in the Effort Sharing Regulation (ESR)[2] if it implements policies and measures in line with the projections provided, notably in the transport and agriculture sectors. The final plan could benefit from considering if domestic overachievement of the ESR target e.g. through more measures in the building sector could be cost efficient in view of a use for transfers to other Member States and to contribute to jobs and growth.
- ✓ The draft plan does not describe yet how Romania intends to comply with the **Land Use, Land Use Change and Forestry** (LULUCF) no-debit commitment[3] (i.e. emissions do not exceed removals) as corollary to achieve its 2030 non-ETS target.
- ✓ The overall **renewable energy contribution** is significantly below the renewable share of at least 34 % in 2030 that results from the formula in Annex II of the Governance Regulation, a situation which would also require an indicative trajectory in the final plan[4] that reaches all reference points[5] in accordance with the national contribution. The final plan would benefit from elaborating further on the policies and measures allowing the achievement of the contribution and on other relevant sectorial measures.
- ✓ Considering Romania's potential stated in the draft plan of becoming an important player in achieving the EU 2030 **energy efficiency** targets, the ambition level of the foreseen contributions in the draft plan also appears very low.
- ✓ The right to establish its own energy mix and the objective of maintaining its current diversity and balance based on internal energy sources appear to be overarching elements defining the approach to the draft NECP, and notably the **security of supply dimension**.

[1] 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.
[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] 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.
[4] Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action.
[5] Pursuant to Article 4(a)(2) of Regulation 2018/1999.

Priority projects included in the Energy Strategy with a 2030 horizon that aim at addressing security of supply need to be comprised in the final plan. A good practice is the inclusion of adaptation policies and measures in the energy security dimension. The final plan would benefit from including measures envisaged in view of the foreseen role of nuclear generation capacity.

- ✓ The **internal market dimension** recognises the importance of interconnections and of addressing energy poverty, the latter deserving further details and measures in the final plan. Measures for ensuring market functioning, network upgrade and development view to enhanced flexibility needs entailed by renewable energy development and the increase in installed capacity by 2030 would also benefit the final plan. Regulatory measures adopted in 2018 that are relevant for this dimension need to be part of the final plan. The draft plan provides some information regarding the number of households in energy poverty, and a national objective to reduce energy poverty and protect vulnerable customers. In addition, the final plan would benefit from listing more concrete measures and timeframes on this issue.
- ✓ While the current situation and existing programmes in the **research and innovation** dimension are described, the final plan will need to include specific 2030 objectives.
- ✓ Many **policies and measures** are listed across the draft plan, structured according to objectives and covering all dimensions of the Energy Union. Hereby they already integrate a comprehensive approach. Substantiating policies and measures with concrete information - such as prioritisation, timeframes, expected impacts and investment needs - to underpin their consistency with the stated objectives and targets would benefit the quality of the final plan. Similarly, possible policy interactions need to be adequately reflected in the final plan.
- ✓ The draft plan contains a partial assessment of the **investment needs,** expenditures and funding sources, and thus does not yet fully take advantage of the role NECPs can play in providing clarity to investors and attracting additional investments in the clean energy transition. Investment needs to achieve the objectives of the Romanian Energy Strategy are estimated as EUR 127 billion overall from 2021 to 2030 (annually around 6 % of current GDP), mostly in energy demand sectors. The use of Union level funding sources such as cohesion policy or the Modernisation Fund is not yet specified.
- ✓ Most of the required elements of the **analytical basis** are present. The final plan would benefit from more information on methods and assumptions at the level of specific policies and measures.
- ✓ **Regional cooperation** focuses in particular on the energy security and internal market dimensions, and there is significant potential for further cooperation in these dimensions. Given the upcoming common challenges (along with neighbouring countries) for the future development of the energy sector, regional cooperation represents an opportunity for also addressing the other dimensions of the NECP.
- ✓ The final plan would benefit from an analysis of the interactions with **air quality** and air emissions and presenting the impacts of policies and measures on air quality. The projected increase in bioenergy would make air impacts especially important to consider.
- ✓ The draft plan does provide some elements on a **socially just energy transition**, which could however be better integrated throughout by considering social and employment impacts, e.g. shifts in sectors/industries and skills impacts, distributional effects and revenue recycling. The final plan could discuss the needs and measures addressing the structural

changes entailed by the clean energy transition for mono-industrial regions such as those depending on the coal industry. Education, information and awareness among citizens are embedded throughout the document.

- ✓ A list of all **energy subsidies** and actions undertaken and planned to phase them out, in particular for fossil fuels, need to be included in the final plan.
- ✓ A potential **good practice** is that Romania considers setting-up an energy efficiency investment fund (FIEE) financed by private, public and EU funds, and the intention to use ETS auction revenues and new EU ETS support mechanisms to co-finance decarbonisation technologies and processes as well as renewable energy and energy efficiency projects. Depending on its implementation, such a fund could efficiently pool resources to trigger needed investments in those sectors.

Preparation and submission of the draft plan

Romania notified its draft National Energy and Climate Plan (NECP) to the European Commission on 31 December 2018. The draft National Energy and Climate Plan (NECP) closely follows the structure provided in Annex I of the regulation on the Governance of the Energy Union and Climate Action. It is presented as a living document, to be revised in the iterative process with the Commission, as well as regional and national consultations.

An inter-ministerial working group coordinated by the Ministry of Energy was tasked with overseeing the preparatory process of the draft NECP, while a consultancy was contracted to support the development and drafting of the document.

A short **public consultation** on the draft plan was run ahead of its submission to the Commission. The inputs received have not been addressed yet but are described in the document. Romania also contacted **neighbouring Member States** to initiate consultations, however feed-back did not arrive in time for it to be reflected in the draft plan.

Overview of the key objectives, targets and contributions

The following table presents an overview of Romania's objectives, targets and contributions under the Governance Regulation[6]:

[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 targets and contributions	Latest available data	2020	2030	Assessment of 2030 ambition level
	Binding target for greenhouse gas emissions compared to 2005 under the Effort Sharing Regulation (ESR) (%)	-2	+19	-2	As in ESR
	National target/contribution for renewable energy: Share of energy from renewable sources in gross final consumption of energy (%)	24.5	24	27.9	Below 34 % (result of RES formula)
	National contribution for energy efficiency: Primary energy consumption (Mtoe) Final energy consumption (Mtoe)	32.4 23.2	43 30.3	36.7 27.5	Very low Very low
	Level of electricity interconnectivity (%)	7	>9[7]	Not provided	N/A

Sources: EU Commission, ENERGY STATISTICS, Energy datasheets: EU28 countries; SWD(2018)453; European Semester by country[8]; COM/2017/718; Romanian draft NECP.

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

Dimension decarbonisation

Greenhouse gas emissions and removals

The draft NECP describes the 2030 non-ETS target under the ESR of -2 % emissions compared to 2005. The gap in 2030 between the ESR target and effort sharing sector emission projections with existing measures (WEM) appears to correspond to approximately 5 % of 2005 emissions. The final plan would benefit from an explanation and source for the 2005 effort sharing sector data used in the projections[9].

The scenario with additional measures (WAM) reflects a domestic achievement of the **ESR target** in effort sharing sectors. The description of policies and measures could be clearer whether the included policies are firmly planned or only potential measures or objectives. The

[7] Level indicated in the Romanian draft NECP.

[8] https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/european-semester/european-semester-your-country_en.

[9] The 2005 effort sharing sector data used in the projections of 80.93 Mt differs from the Commission's published effort sharing sector 2005 base year data of 75.47 Mt (SWD(2018)453 final, Table 4). GHG emission inventory updates might be a possible reason.

draft plan does not consider if an overachievement could be cost efficient in view of a use for transfers to other Member States.

Transport emissions, the largest effort sharing sector, are projected to increase with existing measures. Romania aims at achieving a share of 17.6 % renewable energy in the transport sector. **Electromobility** is supported via fiscal incentives, as is the case for hydrogen and gas in transport. The plan also mentions the need for developing the recharging and refuelling infrastructure and further incentivising the uptake of alternative fuels. Including details on how policies and measures on alternative fuels will be developed in the future in terms of scope, and expected impact would be welcome.

For **agriculture**, the second largest effort sharing sector, some potential future emission reducing policies are included in the WAM scenario. The described policies focus on climate adaptation. The draft plan outlines some policy objectives for the **LULUCF** sector and describes the LULUCF flexibility that could be used if LULUCF credits were generated and needed for compliance under the ESR[10] (up to of 13.2 Mt CO_2eq for the period 2021-2030) without indicating whether Romania intends to use it or not.

While the draft plan does not set additional national targets for reducing GHG emissions, it describes strategic objectives for different sectors under the National strategy on climate changes and economic growth based on low-carbon emissions for the period 2016-2030.

Climate adaptation is mentioned under six operational objectives in the draft plan, including three of the energy dimensions. The draft NECP does not include explicit adaptation goals or objectives, despite the fact that the climate change strategy has adaptation as a general objective.

Renewable Energy

Romania's draft plan sets a 27.9 % renewable energy contribution in gross **final consumption of energy** for 2030 without providing information on the methodology used in setting this contribution. It is not clear if the 2020 target or the actual renewable energy consumption in 2020 is considered as baseline. This contribution is significantly below the renewable share of at least 34 % in 2030 that results from the formula in Annex II of the Governance Regulation[11], which expects Romania to reach a renewable share of at least 34 % in 2030. This assessment is further underpinned by the fact that the reference points for the indicative trajectory already reach 47 % in 2023 and slightly overachieve the 2030 contribution already in 2025. After 2025, the share of renewable energy decreases slightly to achieve the 27.9 % contribution set for 2030. The first reference point on the indicative trajectory relates to 2023, instead of 2022.

The draft plan provides estimated sectoral shares of renewable energy, the renewable energy technology contribution and the expected gross final consumption in absolute values. More information on the methodology behind the renewable energy contribution calculation of 27.9 % expressed in absolute values (ktoes) would be useful in the final plan, to clarify how the respective sectoral values, specifically the transport sector, was taken into account in the total gross final consumption of renewable energy. According to the draft plan, in 2030, **electricity from renewable sources** will come from hydro, wind (increasing only after 2025) solar and other sources. In absolute terms, electricity from renewable energy is increasing, however the drop in the renewable energy share for electricity from 41.8 % in 2020 to 39.6 % in 2030 is not

[10] Regulation (EU) 2018/842 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030.
[11] Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action.

further explained and the draft plan does not include specific measures to develop capacity to produce renewable electricity. There is a reference to adjusting the legislative framework and commissioning studies by 2025 to develop renewable energy and facilitate their market integration. Such delay in pursuing further renewable energy development, and its implications, warrants further details in the final plan not least considering the transposition deadline of new EU legislation. In this context, details should be included in the final plan on the measures to support the deployment of self-consumption and renewable energy communities, and to achieve further administrative simplification.

For **heating and cooling**, the existing renewable share comes from the use of biomass in boilers with an alternative being heat pumps, depending on cost development of the latter. For the technology trajectory, the final plan needs to put forward all the technology contributions aggregated under the term Final energy consumption. The 31.3 % renewable energy heating and cooling share projected in 2030 takes into account only existing measures, while the draft plan indicates that waste heat is not counted. Although Romania intends to explore different ways to increase the use of renewable energy in the heating and cooling sector, the trajectory of the draft NECP does not indicate that the 1.1 percentage point of renewable increase will be achieved, as foreseen in the new Renewable Energy Directive[12]. In this regard, the final plan would benefit from including more information. Similarly, more information on how the renewable energy share increase of 1 percentage points for district heating and cooling, calculated according to the new Renewable Energy Directive, and related infrastructure needs to be elaborated in the final plan.

As regards the share of renewable energy in **transport**, for 2030 the draft plan includes a technology breakdown without putting forward the calculation of the transport target as requested in Articles 25-27 of Directive 2018/2001[13] in absolute values. This could be included in the final plan, which would also benefit from providing comparable numbers for all the years between 2020 and 2030 in terms of multipliers. The final plan needs to clarify the meaning of 1st and 2nd generation biofuels as per Annex IX of Directive 2018/2001[14]. Based on the draft plan it is not yet clear whether the advanced biofuel sub-target will be fulfilled.

Dimension energy efficiency

The draft NECP includes a national energy efficiency contribution of 36.7 Mtoe by 2030, expressed in primary energy consumption only. According to the figures for the WAM scenario, this corresponds to 27.5 Mtoe of final energy consumption. The indicative trajectory seems to be linear based on the projections for the WAM scenario. Overall, the contributions of Romania reflect a very low ambition considering the need to increase efforts at EU level to collectively reach the Union's 2030 energy efficient targets.

The target for 2030 entails an increase of Romania's primary energy consumption by 13 % (4.5 Mtoe) compared to 2017 level. On the other hand, the 2030 target is 15 % (6.3 Mtoe) below Romania's 2020 target which assumed a substantial increase in energy consumption compared to 2005 levels. In setting the national contribution, the draft plan does not explain how Romania has taken into account the European Union's 2030 energy consumption target. Similarly, it does not provide details regarding factors and conditions which could affect future primary and final

[12] 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.
[13] Directive (EU) 2018/2001 on the promotion of the use of energy from renewable sources.
[14] Directive (EU) 2018/2001 on the promotion of the use of energy from renewable sources.

energy consumption levels other than mentioning that the expected targets will be influenced by the increase of the industrial production and living standards. Hence, the description of the level of ambition warrants a more detailed description in the final plan.

The WAM projections point to a reduction of energy consumption until 2020 and then again a growing trend till 2030. The proposed contributions for 2030 to be achieved with new policies are above the projections in the scenario with existing measures for 2030, which might be linked to the fact that some input parameters in the WAM scenario, such as GDP and population, are higher than in the WEM scenario, but it also raises questions about the ambition of the additional measures. The projections for GDP in 2030 in the WAM scenario projects are over 30 % higher and for the WEM scenario 5 % lower than the projections from the 2018 Ageing Report[15]. Against this background, the quality of the final plan would benefit from clarifying the use of different parameters and assumptions.

The draft plan presents a list of regulatory and non-regulatory measures addressing energy efficiency. The former are mainly to ensure implementation of EU legislation, while the latter address mainly transport, behavioural aspects as well as financial support. Some general information is presented relating to policies and measures for **buildings** that could be implemented as part of its long-term renovation strategy. More details in the final plan would be useful given the significant contribution to the EU's 2030 energy efficiency target of a cost-effective transformation of existing buildings into nearly zero-energy buildings.

The draft plan mentions the objective of developing measures that contribute towards more efficient organisation of the mobility system and thus towards improved energy efficiency and emissions reductions (e.g. incentivising multimodality and modal shift, intelligent transport systems, digitalisation, sustainable urban mobility plans, spatial planning, soft measures).

Overall, polices and measures in the draft plan could be better described. They lack concrete details, information on prioritisation, timelines and expected impacts, especially in terms of energy savings. The WAM scenario includes the expected impact of additional measures in aggregated terms, but it is unclear whether the included policies are firmly planned or identified as potential measures or objectives. Addressing these issues in the final plan would allow a better understanding of Romania’s approach to energy efficiency policy.

Dimension energy security

For the security of supply dimension the objectives reflect the priority given to ensuring electricity supply from internal sources and to preserving the limited degree of energy dependence based on the use of all internal primary resources. Further objectives refer to developing interconnections and ensuring system resilience by upgrading and modernising the energy system and addressing cybersecurity threats. The draft plan also sets objectives for increasing system flexibility such as the integration of battery storage in the electricity system and the operationalisation of dynamic tariffs. Discussing batteries and cybersecurity are positive forward-looking elements that add to the comprehensiveness of the draft plan and merit further details in the final plan.

The draft plan notes that the expected improved energy efficiency resulting from replacing ageing electricity capacities with new, low-emission ones by 2030 will contribute to enhancing security of supply. This is likely to mean the replacement of current coal and gas based electricity

[15] https://ec.europa.eu/info/publications/economy-finance/2018-ageing-report-economic-and-budgetary-projections-eu-member-states-2016-2070_en.

capacities with new ones, considering the stated objective of keeping all sources in the energy mix up to 2030. The final plan would benefit from being more precise on this aspect. It would also be enhanced by providing a schedule of which existing power stations will be decommissioned and details as to the timeline for the foreseen new capacities. Moreover, the draft plan also refers to the TSO adequacy assessment showcasing the need to install additional capacity of at least 400 MW by 2020 and additional 600 MW in 2025 as means to compensate for variable renewable energy. The final plan should clarify the link between these planned new capacities and their impact against expected demand and the energy efficiency and decarbonisation objectives.

Romania foresees continuing the use and expansion of nuclear power capacities by 2030 and beyond. Against this background, the final plan would benefit from including information on the lifetime of existing and new nuclear reactors, the impact of the new reactors on the energy mix and interconnections and electricity export as well as information on the strategy for ensuring long term supply of nuclear fuel given internal resources.

The security of supply dimension needs to be further detailed in the final plan as regards the policies and measures, their prioritization with concrete timelines, investment needs for their achievement and expected impacts on the other dimensions. References should be added to the existing preventive action and emergency plans for gas and to oil stocks and emergency procedures as well as to implementation of the Risk Preparedness Regulation[16].

The final plan needs to include the most relevant projects whose implementation is ranked as a priority for 2030 in the Energy Strategy 2019-2030, with a 2050 Perspective – which include new nuclear capacities, new coal-based capacity, a hydro pump storage project and a new hydro power plant project on the Danube. Including the above mentioned detailed information on these projects would benefit the comprehensiveness of the final plan beyond the security of supply dimension. The final plan also needs to reflect all recent regulatory measures relevant for the energy market and assess them with respect to their impact of long-term national and regional security of supply and in particular on the expected investments to exploit the important off-shore gas reserves in the Black Sea.

Dimension internal energy market

The draft plan acknowledges the importance of developing interconnections, including by finalising projects for the development of internal electricity lines. The level of electricity interconnectivity aimed for in 2030 is not specified based on the fact that two out of the three indicators for urgency of action are considered to be fulfilled.

Regarding **market integration**, the description of the current situation as regards regulated prices warrants an update to reflect the latest measures put in place. Objectives described comprise, among others, the intention to set-up a short term capacity market, to continue market coupling initiatives, to implement the balancing regulation or to develop further legislation. In the final plan, policies and measures need to be detailed, also having in mind recently adopted legislation on market design. They should include timeliness and pathways so as to adequately underpin the achievement of the set objectives and warrant progress monitoring. This includes the objective of full liberalisation of the market and commitments towards the implementation of electricity guidelines and network codes. The draft plan announces introducing smart metering “at the latest

[16] Regulation (EU) 2019/941 of the European Parliament and of the Council of 5 June 2019 on risk-preparedness in the electricity sector and repealing Directive 2005/89/EC.

in 2028". Details explaining this deadline or a reflection on conditions under which smart metering could be introduced earlier would benefit the final plan, along further detailing on flexibility issues.

Including quantitative core parameters, such as wholesale and retail market concentration levels, indicators for market liquidity such as traded volumes and market participants, switching rates etc. would facilitate understanding the functioning of the market and benefit the completeness of the final plan. Furthermore, as competitive markets are a key enabler for other dimensions of the Energy Union, objectives related to the further development of wholesale and retail market competition and corresponding measures and timelines merit being included in the final plan.

The reference to an analysis to be performed in 2021-2022 to look into the potential of injecting e-hydrogen in existing gas transmission systems is a noteworthy good practice example which could be further detailed in the final plan.

Some information regarding the number of households in **energy poverty** is provided, as is a national objective to reduce energy poverty and protect vulnerable customers. Listing more concrete elements as well as concrete measures and timeframes to address these issues would benefit the final plan. The draft plan refers to an existing 2015-2020 strategy relevant for poverty reduction. Assessing its impacts as a basis for defining concrete policies and measures would benefit this section in the final plan. Moreover, the final plan could further elaborate on the intended use of policy measures under Article 7 of the amending Directive 2018/2002[17] to alleviate energy poverty. The draft plan notes that the incomplete definition of vulnerable consumers negatively affects the efficiency of financial and non-financial measures addressing energy poverty, so the final plan could give priority among planned measures to the achievement of such a definition within a given timeframe.

Dimension research, innovation and competitiveness

An analysis has been provided as regards the current situation of the low-carbon technologies sector, current level research and innovation spending, current number of patents and researchers.

The draft NECP sets out a list of operational programmes currently underway as part of the 2014-2020 National Strategy for Research, Development and Innovation, but it does not give objectives for the period beyond 2020. The final plan would benefit from an assessment of this Strategy's (interim) results as a basis for defining future measures with a 2030 horizon. Moreover, the final plan provides an opportunity to translate the **Strategic Energy Technology (SET) Plan** objectives into national objectives for 2030 and to discuss financing measures up to 2030.

Information on the 2014-2020 National Competitiveness Strategy has been provided. The final plan would benefit from complementing this information with an assessment of this strategy's results, and from providing a comprehensive analysis on where the low-carbon technologies sector is currently positioned in the global market, including for decarbonizing energy and carbon-intensive industrial sectors and highlighting areas of competitive strengths and potential challenges. Measurable objectives for the future should be defined on that basis, together with policies and measures to achieve them, making appropriate links to enterprise and industrial policy.

[17] 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.

Similar to the other dimensions, policies and measures need to be better detailed in the final plan in terms of including concrete details such as timelines, prioritisation and investment needs and an assessment of the impacts of policies and measures on competitiveness.

3. COHERENCE, POLICY INTERACTIONS AND INVESTMENTS

In the draft NECP, a large number of policies and measures which are structured according to objectives are listed, and covering all dimensions of the Energy Union. As such, the policies and measures appear to be rather comprehensive and to consider some interlinkages between the dimensions, with the exception of accounting for the energy efficiency first principle.

The draft NECP discusses the resilience capacity of the national energy system (including against natural disasters) and outlines a set of adaptation policies and measures in the energy security dimension. Other possible interactions between the policies and measures are not described and warrant more attention in the final plan. For example, the roll-out of smart meters is foreseen in 2028, so towards the end of the plan's period, while this measure is considered in the draft plan relevant for the achievement of energy efficiency, decarbonisation and internal market objectives. The effect of such late roll-out could be therefore further explained in the final plan. Also, the impact of the increase in domestic forest biomass supply for the projected indicative trajectory of increased use of biomass in electricity and heat production of 55 % on the LULUCF sink still needs to be looked at.

The intrinsic tension between the decarbonisation objective and the choice to maintain the use of coal and gas at the 2030 horizon merits further discussion and substantiation in the final plan. In particular, substantiating the analysis behind the further use of coal- based electricity production is warranted in the final plan, having in mind the impact of increasing carbon prices and of the fuel cost on the competitiveness of coal power generation assets, as well as air pollution impacts. The needed technology upgrades of current production capacities to enhance their efficiency and ensure compliance with environmental standards and the investment needs in the modernisation of the coal production sector are further elements to be considered in such assessment.

The interaction between maintaining all energy sources by 2030 and the roll-out of low-carbon technologies could be further looked into in the research, innovation and competitiveness dimension, including defining clear objectives and allocating the necessary funds for timely deployment. The final plan would benefit from analysing the environmental impacts of measures to promote **hydro or biomass energy**, including an assessment of the biomass sustainable supply and potential impacts on biodiversity. The plan provides information on several policies and measures for **biodiversity** conservation, from more sustainable agrarian practices, to increase the biodiversity capacity to adapt to climate change. The synergies between these policies and climate mitigation and adaptation merit to be underlined.

The draft plan lacks quantitative information and analysis about the interactions with **air quality and air emissions policy**, while the projected increase in bioenergy would make air impacts especially important to consider. The draft plan mentions the need for promoting the transition to a **circular economy** and includes e.g. waste prevention, but lacks references to the specific circular economy action plan or roadmap. The final plan could consider the interaction with more comprehensive circular economy measures.

The draft plan does provide some elements on a **socially just energy transition**, which could however be better integrated throughout by considering social and employment impacts related to a green/circular economy, e.g. shifts in sectors/industries and skills impacts, distributional effects

(including on energy poverty) and revenue recycling. The final plan could discuss the needs and measures addressing the structural changes entailed by the clean energy transition for mono-industrial regions such as those depending on the coal industry. Education, information and awareness among citizens are embedded throughout the document. The draft plan foresees training measures for energy efficiency in buildings (rehabilitation) and for clean production, resource and energy efficiency in manufacturing. In the energy sector, it plans to develop higher education, to align training programs with the sector needs and to train specialist administrators.

The draft NECP contains a partial assessment of **investment needs** and expenditures, funding sources and other relevant information. Total investment needs to achieve the objectives of the Romanian Energy Strategy are estimated as EUR 127 billion for 2021 to 2030 (annually around 6 % of current GDP) and main risks are listed. EUR 105 billion of those relate to energy demand in the industry, tertiary, residential and transport sectors, EUR 13 billion for power and heat supply and EUR 9 billion for grids. This includes a significant increase of nearly 50 % compared to the WEM scenario in the second half of the next decade, notably for industry, tertiary and grids. The information does not however provide a full picture of the investment needs for the whole draft NECP and with respect to funding sources for the public part only refers in general terms to EU and national funds when describing some measures. To address this, the final plan could provide more specific information per dimension and per policy and measure, such as the intended use of EU ETS allowances including its share from the Modernisation Fund set in legislation (37 million allowances, corresponding to EUR 740 million at a carbon price of EUR 20/t) and considerations on transferring allowances from the ETS Article 10c derogation into this Fund[18]. This would ideally facilitate a prioritisation of measures and provide transparency and predictability to private investors. Some investment needs could partly be covered by cohesion policy funding, notably in line with the investment guidance for 2021-2027 of the 2019 European Country Semester Report for Romania and with any other relevant legislation.

Links with the European Semester

- Identifying financing needs and securing the necessary funding will be key to deliver on energy and climate objectives. The Commission addressed this question as part of the 2019 European Semester process.
- Based on the 2019 Country Report for Romania, published on 27 February 201919, the European Commission's recommendation for a Council recommendation for Romania issued on 5 June 201920, in the context of the European Semester, highlights in particular the need to invest in 'transport, notably on its sustainability, low carbon energy and energy efficiency'.
- When preparing its overview of investment needs and related sources of finance for the final plan, Romania should take into account these recommendations and links to the European Semester.

A complete description of existing **energy subsidies**, including for fossil fuels is an important element to be included in the final plan, as is the complete breakdown of current price elements,

[18] 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 allowances available pursuant to Article 10c to the Modernisation Fund.
[19] SWD(2019) 1022 final: Country Report Romania 2019.
[20] COM(2019) 523 final: Recommendation for a Council Recommendation on the 2019 National Reform Programme of Romania and delivering a Council opinion on the 2019 Convergence Programme of Romania.

notably as regards the level of taxes and levies. Based on internationally used definitions, the Commission's energy prices and costs report identifies energy subsidies in Romania, including fossil fuel ones. It would therefore be important that the final plan provides a description of the national policies, timelines and measures to phase out energy subsidies, particularly for fossil fuels as these are a relevant element for decarbonisation policies.

4. REGIONAL COOPERATION

The draft plan shows Romania is pursuing regional energy cooperation, in particular related to the internal energy market and infrastructure development, notably in CESEC which includes the Energy Community Contracting Parties. In terms of market integration, the draft plan also refers to a project aimed at agreeing on a capacity calculation method at regional level, which could be further detailed in the final plan.

There is significant potential to further cooperate in the internal energy market and energy security areas in particular with a view to upcoming developments in the electricity sector, the need to accommodate higher shares of renewable energy and Romania's export potential. A solid final plan would address measures for regional cooperation when assessing system adequacy as foreseen in the Electricity regulation[21]. An assessment of whether regional cooperation could ensure resource adequacy in a more cost effective way than a strategic reserve would be useful.

The impact of new built nuclear on interconnections and trading merits further discussion at regional level, considering that Romania's neighbouring Member States also foresee building new nuclear capacities by 2050.

This is also valid as regards security of supply in the gas sector, notably with a view to regional impacts of the latest measures regulating the exploitation of offshore resources and the functioning of the gas market.

As regards renewable energy, the draft plan refers to regional cooperation as an opportunity to increase the renewable energy installed capacity, but tangible measures or projects with expected implications on interconnection projects/ the electricity network would improve the final plan and further regional consultations.

Last but not least, regional cooperation in the research and innovation dimension could facilitate the pursuit of common projects, including in the area of low carbon technology development which is relevant in the context of the energy mix and new coal based capacities envisaged by Romania by 2030.

5. COMPLETENESS OF THE DRAFT PLAN

Information provided

The **decarbonisation dimension** of Romania's draft NECP is partially complete with respect to the required information on **greenhouse gases** (GHG). The draft plan does not quantify the estimated annual emission trajectory in 2021-2030 under the ESR. It does not provide accounted projections for the LULUCF sector and it is thus not possible to assess whether the LULUCF no-debit commitment will be achieved.

[21] Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity.

A contribution level towards the EU 2030 renewable energy target is set and most of the information required on **renewable energy** is provided. Trajectories for the bioenergy demand, their disaggregation between heat, electricity and transport, trajectories of supply by feedstock and origin and trajectories for forest biomass, an assessment of its source and impact on the LULUCF sink need to be included in the final plan. This is especially important given the prominent role of bioenergy in the draft NECP. Planned capacities are described but are not split between new capacities and repowering. As regards policies and measures, a description of the existing and forecasted policies is included in the draft NECP in a general manner. Measures regarding power purchase agreements (PPAs) are not included.

The draft plan contains Romania's national **energy efficiency** contribution for 2030, expressed only in primary energy consumption. The indicative trajectory is not clearly presented. A list of possible policies and measures of the long-term renovation strategy is given, but lacks details. The cost benefit analysis of high-efficiency cogeneration and district heating lacks substantiation. Romania indicates that an annual energy savings rate of at least 0.8 % as provided in Article 7 of the Energy Efficiency Directive[22] will be established for the period 2021-2030 and that it intends to achieve the target by continuing the policy measures notified in the last National Energy Efficiency Action Plan, but further details regarding the implementation of these measures are missing. There is no indication of the objectives and expected savings under Article 5 of the EED.

As regards **energy security**, the objectives included in the draft plan are of qualitative nature and largely reflect the information required in Annex I[23], albeit the timeframes for their achievement is missing.

The level of electricity interconnectivity Romania aims for in 2030 is not provided in the **internal energy market** dimension, however the urgency indicators set in Annex 1 of the Governance Regulation are addressed. Additional information and details regarding the current situation and measures in place in the electricity and gas markets and information on core quantitative parameters would allow further understanding of the functioning of the national retail and wholesale gas and electricity markets and how Romania intends to implement recent market design legislation, in particular regarding system flexibility. This includes information on current uptake, market barriers and policy targets for demand response and development of distributed generation, and, to a lesser extent, on energy storage.

The information provided related to **research, innovation and competitiveness** is largely incomplete, as objectives to be achieved by 2030 and funding targets for this time horizon are not described. Specific objectives related to the deployment of low carbon technologies are missing, as are objectives related to competitiveness beyond 2020.

Robustness of Romania's draft National Energy and Climate Plan

Most of the required elements of the analytical basis are present in Romania's draft plan. It reports both a with existing measures (WEM) and a with additional measures (WAM) scenario in the voluntary templates, the latter referred to as 'with planned measures' in the draft plan. It also provides a very complete list of existing and planned policies and measures, reported in the

[22] 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.
[23] Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action.

suggested template. An impact assessment of planned policies and measures is provided. The draft plan is using a variety of data sources, including Eurostat.

The **WEM and WAM projections** fully cover the five dimensions of the Energy Union. Romania's final plan could be enriched by providing projections beyond 2030 for all variables. However, detailed numerical data in time series on the following variables would be desirable: (i) sectoral GHG emissions per IPCC gas, (ii) GHG emissions from international aviation, (iii) GHG emissions and sinks from LULUCF, (iv) non-GHG air pollutants, and (v) projected electricity interconnectivity levels and exchanges per partner.

The draft plan is presented in a largely **transparent** way: all key parameters have been provided, including sources, and the tools are mentioned. More information could be provided on the overall modelling approach.

Concerning the **impact assessment** of planned policies and measures, it is announced that GHG projections will be updated before the publication of the final plan. The impact assessment could be further improved by outlining what the expected effects of individual policies and measures are and, where possible, their respective date of implementation. The final plan should complete the assessment of macroeconomic and, to the extent feasible, the health, environmental, employment and education, skills and social impacts, including just transition aspects.

The key model parameters are calibrated to EUROSTAT figures for the base year 2015. The draft plan follows its own assumptions with regard to international fuel and EU ETS carbon prices, which largely converge with the Commission's assumptions for 2030.