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COMMISSION STAFF WORKING DOCUMENT

Assessment of the draft National Energy and Climate Plan of Hungary

Accompanying the document

Commission Recommendation

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

{C(2019) 4417 final}

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1. SUMMARY

Main observations¹

- ✓ The draft integrated National Energy and Climate Plan (NECP) follows the structure foreseen in the Governance Regulation². The **key objectives** relate mainly to the **decarbonisation/ renewable energy, energy efficiency and internal energy market** dimensions. Objectives and policies and measures are not yet fully developed, so the draft plan still needs to be completed with elements from Hungary's National Energy Strategy, which will be published this year.
- ✓ Hungary has set climate objectives until 2030 with a view to 2050 under the Second National Climate Change Strategy adopted in 2017. Objectives and policies and measures under several dimensions of the draft plan are still to be completed based on the National Energy Strategy. A strong integrated final plan would benefit from a **further development of policies and measures** consistent with objectives and targets.
- ✓ Hungary's 2030 target for **greenhouse gas (GHG) emissions** not covered by the EU Emissions Trading System (non-ETS), is -7 % compared to 2005, as set in the Effort Sharing Regulation (ESR)³. The additional policies and measures planned in the draft NECP, notably in the building and transport sectors, would enable Hungary to overachieve this target, provided that the Land Use, Land Use Change and Forestry (LULUCF)⁴ no-debit commitment (i.e. emissions do not exceed removals) is met. The draft plan does not yet consider if the planned level of overachievement is cost-efficient in view of a use of transfers to other Member States or could be further enhanced to contribute to growth and jobs e.g. through further policies in the building sector. The draft plan does not yet specify adaptation goals, although Hungary has a National Adaptation Strategy.
- ✓ Hungary proposes a share of 20 % **energy from renewable sources** in gross final consumption of energy in 2030 and corresponding sectoral shares. This overall contribution does not fully reflect Hungary's potential and is below the share of 23 % in 2030 that results from the formula in Annex II of the Governance Regulation⁵. The final

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) 2018/1999 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.

³ 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.

⁴ Regulation (EU) 2018/841 of the European Parliament and of the Council of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework, and amending Regulation (EU) No 525/2013 and Decision No 529/2013/EU.

⁵ Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action.

plan would need to include an indicative trajectory that reaches all required reference points⁶ in accordance with the national contribution. The proposed share is the same as the projection in the scenario with additional measures, meaning that it will only be met with additional measures, which have not yet been detailed. The final plan would benefit from elaborating further on the policies and measures allowing the achievement of the contributions and on other relevant sectorial measures.

- ✓ The proposed contributions towards the 2030 collective EU **energy efficiency target** are not clearly set as primary and final energy consumption but rather expressed as expected energy consumption reduction compared to an undefined baseline. The ambition level of the proposed contribution is very low and does not exploit opportunities for growth and job creation. Policies and measures could be better clarified in the final plan, including as regards expected savings.
- ✓ **Energy security** objectives for electricity are framed around the role of national assets (nuclear, renewable energy) and market integration. For gas, diversification of sources and import routes is a key element. Objectives and policies and measures for this dimension are expected to be further refined based on the upcoming Energy Strategy. The final plan would benefit from addressing the measures envisaged with a view to the foreseen role of nuclear generation capacity.
- ✓ As regards the **internal market**, pending the finalisation of the Energy Strategy, this dimension includes some objectives which are a good starting point for further development and underpinning with concrete policies and measures in the final plan. The level of **electricity interconnection** already significantly exceeds 15%, and there is no commitment to a specific interconnectivity level for 2030, although the draft plan acknowledges the importance of increasing cross-border capacities. **Energy poverty** elements should be further elaborated in the final plan, notably based on a dedicated assessment of energy poverty as required by the Governance Regulation⁷.
- ✓ The draft plan states Hungary's commitment to the innovative transformation of the energy sector, with the objective to increase energy related **research and innovation** input. A broad consultation process to assess innovation opportunities was launched, which provides a good example of driving policy in this area. National objectives and funding targets to be achieved by 2030 as well as objectives related to the deployment of low-carbon technologies are yet to be determined based on the upcoming Energy Strategy.
- ✓ **Investment needs** are partially presented as a high-level estimate of around HUF 14,700 billion needed to achieve national decarbonisation and energy efficiency objectives, corresponding to around 3.5% of GDP annually. A general assessment of the national, regional and Union level investment sources, such as cohesion policy funding or the Modernisation Fund, is not yet provided. The draft plan 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.

⁶ Pursuant to Article 4(a)(2) of Regulation 2018/1999.

⁷ Pursuant to Article 3.3(d) of Regulation 2018/1999.

- ✓ The final plan would also benefit from addressing in more detail the **just transition** and fair transition aspects, including in relation to coal and carbon-intensive regions in transition. This includes further considerations on the costs and benefits as well as cost effectiveness of planned policies and measures addressing just transition.
- ✓ A list of all **energy subsidies**, including in particular for fossil fuels, and actions undertaken and planned to phase them out needs to be included in the final plan.
- ✓ There is potential for intensifying the already existing **regional cooperation** taking place in groups such as the Visegrad Group and Central and South-Eastern European Energy Connectivity (CESEC), focusing on integration in the internal energy market, decarbonisation and renewables deployment as well as research, innovation and competitiveness, taking into account common challenges and shared objectives.
- ✓ The final plan would benefit from complementing the analysis of the interactions with **air quality and air emissions** policy with more quantitative information, having in mind that the projected increase in bioenergy would make air impacts especially important to consider.
- ✓ It can be considered as **good practice** that the draft plan differentiates estimates of investment needs for energy efficiency measures in buildings, electromobility and renewable energy up to 2030, as well as the implied need for public investment aid. Overall, this part would benefit from further refinement to allow for a complete picture towards 2030 under all Energy Union dimensions thus taking advantage of the role NECPs can play in attracting investments in the clean energy transition.

Preparation and submission of the draft plan




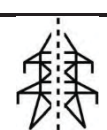
Hungary notified its draft NECP to the European Commission on 31 January 2019. It was prepared under the responsibility of the Ministry of Innovation and Technology and will be further completed and detailed based on Hungary's National Energy Strategy. This strategy is currently being developed and is planned to be finalised in the course of 2019.

The draft NECP has not been made available for **public consultation**. In November 2018, Hungary took part in a **consultation** process with the Visegrad Group countries plus Austria to discuss the regional aspects of the NECPs. Throughout 2019, Hungary plans to undertake further regional consultations and to present the results thereof in the final NECP.

Overview of the key objectives, targets and contributions

The following table presents an overview of Hungary's objectives, targets and contributions under the Governance Regulation⁸:

⁸ Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action.

	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) (%)	-9	+10	-7	As in ESR. Total GHG 2030 -40% to 1990
	National target/contribution for renewable energy: Share of energy from renewable sources in gross final consumption of energy (%)	13.3	13	20	Below 23 % (result of RES formula)
	National contribution for energy efficiency: Primary energy consumption (Mtoe) Final energy consumption (Mtoe)	24.5 18.5	24.1 14.4	27.0 18.6	Very low Very low
	Level of electricity interconnectivity (%)	58	98	Not provided	N/A

Sources: EU Commission, ENERGY STATISTICS, Energy datasheets: EU28 countries; SWD(2018)453; European Semester by country⁹; COM/2017/718; Hungarian 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 GHG emission target under the Effort Sharing Regulation¹⁰ for sectors outside the EU Emission Trading System (non-ETS sectors) for 2030 is -7 % compared to 2005. Hungary also has a national economy-wide target of -40 % GHG emissions by 2030 compared to 1990 (excluding LULUCF), and a long term objective to reduce greenhouse gas emissions by 52 to 85 % by 2050 compared to 1990. The projected gap with existing measures to the national greenhouse gas target in 2030 is quantified at 8.2 Mt CO₂eq, while the corresponding gap to the 2030 ESR target can be estimated at around 5 % points or around 3 Mt CO₂eq (excluding LULUCF). The planned policies and measures are sufficient to close the gap between a scenario with existing policies and the ESR target in 2030. The scenario with additional measures quantifies the expected greenhouse gas emission reductions as to achieve -14 % in 2030. The

⁹ 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.

¹⁰ Regulation (EU) 2018/842 on binding annual greenhouse gas emission reductions.

draft plan does not yet consider if this is a cost-efficient level of domestic overachievement in view of a use for transfers to other Member States.

The draft plan aims at reducing greenhouse gas emissions in the **buildings** sector, the largest effort sharing sector with around 30 % of emissions, by around 2.5 Mt to 8.1 Mt CO₂eq in 2030 (this would correspond to a reduction of about 50 % from 2005), mainly through energy efficiency measures.

The draft plan aims to cap emissions in the **transport** sector which is the second largest emission sector with nearly 30 % of effort sharing emissions, by 2030. Reducing emission by 2.7 Mt CO₂eq is envisaged, notably by increasing the share of renewable energy. Electromobility is expected to develop strongly until 2030, aiming at 450000 electric cars and 45000 charging points by 2030. Existing support for electromobility including grants, vehicle taxation, and support to charging stations is planned to be complemented by further policy measures, but would benefit from more details how the charging infrastructure will be achieved and how other alternative fuels are addressed.

More details on how related policies will be developed, including for other alternative fuels, would be welcome.

Emissions in industry and agriculture are projected to grow, however, the draft plan includes only existing policies and measures for **agriculture and LULUCF**, not indicating yet how the Common Agricultural Policy would be considered. With respect to the National Forestry Accounting Plan including the national Forest Reference Level, submitted by Hungary as required by Article 8(3) of the LULUCF Regulation¹¹, the Commission has put forward technical recommendations requesting action on a number of issues, detailed in SWD (2019) 213.

Policies in the waste sector are expected to reduce its emissions by a third compared to 2005 levels.

Other energy policies for closing the gap to the 2030 total greenhouse gas national target are phasing out conventional power plants and introduction of two new nuclear reactors (Paks II) planned to be completed by 2030 as well as more renewable electricity.

Renewable energy

The proposed overall contribution of a 20 % share of renewable energy in gross final energy consumption is below the share resulting from the formula in Annex II of the Governance Regulation¹², which is 23 % in 2030. This foreseen contribution falls short of making best use of Hungary's cost-effective renewable energy potential. This assessment is further underpinned by the fact that the reference points already reach 57 % in 2023 and remain at a level of 71 % of the 2030 contribution throughout 2025 and 2027. Trajectories for the sectoral shares show that Hungary will continue the current trend of mainly exploiting renewable energy in the heating sector, followed by electricity and transport.

Hungary provides the **indicative trajectory** to reach the 20 % contribution in 2030 which satisfies the reference points. The first reference point relates however to 2023, instead of 2022. The draft plan does not yet provide a firm renewable energy share in 2020, but a projection of

¹¹ Regulation (EU) 2018/841 on greenhouse gas emissions and removals from land use, land use change and forestry.

¹² Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action

14.65 % based on voluntary commitment; while satisfying the 13 % national renewable energy target. The final plan could provide clarifications on this.

As regards **renewable electricity**, the draft plan foresees a share of 19.1 % in 2030, where solar is the main renewable electricity source providing around 80 % of all renewable electricity. It is complemented with electricity produced from geothermal and local biomass. Projections assuming the continuation of the Hungarian Renewable Support Schemes (METAR), net-metering and falling prices allow Hungary to more than quadruple the installed solar capacity from the current 700 MW to 3000 MW in 2030. The need to reflect this increase in measures ensuring system flexibility is acknowledged in the security of supply dimension. The draft plan shows that wind energy will be phased out by the end of the period; the reasons behind this decision could be further explained in the final plan.

In 2030, increased supply of renewable energy in the **heating and cooling** sector (target of 26.9 % in 2030 increased from 20.8 % in 2016) will mainly come from biomass in the residential sector. The final plan needs to describe the trajectory and the planned average annual rate of increase in renewable energy in the heating and cooling sector until 2030, addressing the role of waste heat.

Hungary plans to develop individual heating based on ambient energy (heat pumps) and efficient biomass, and district heating using geothermal energy and biodegradable waste. According to the draft plan, renewable district heating will more than double, but its share in overall renewable energy in heating will decrease from 13.2 % (2015) to 5.7 % in 2030. Geothermal energy use will more than double (growth projected is 124 %). Biomass will still provide around 63 % of renewable heating in 2030, compared to 82 % (2015), but its absolute quantity will be reduced. In increasing the share of renewable heating, Hungary plans to have ambitious energy efficiency measures in the building sector. The final plan would benefit from including concrete measures for this sector, showing how the shares of renewable energy would be increased in buildings or district heating sectors and how sustainability of biomass will be addressed.

The expected share of renewable energy in **transport** is 15 %, whereas Hungary is on track to achieving 10 % renewable energy share in transport in 2020. Biofuels are expected to maintain a key role in fulfilling the renewable energy target for transport, next to renewable electricity. Planned measures include promoting electric vehicles and accelerating the implementation of the relevant charging network. The final plan would benefit from further discussing the link between renewable energy electricity generation and the promotion of electromobility. In the final plan, the trajectory for the renewable energy share in transport could include the contributions of all eligible fuels and better clarify the use of the multipliers in the recast of the Renewable Energy Directive¹³. The reference to conventional biofuels also needs to include disaggregation in food- or feed-based biofuels as per applicable requirements and the sub target for advanced biofuels.

As regards renewable energy communities and self-consumption, the final plan is an opportunity to present more detailed measures and to achieve further administrative simplification.

Dimension energy efficiency

The Hungarian **energy efficiency contribution** for 2030 is set in a similar way as the 2020 target, and would represent a 8-10 % reduction compared to the projections of the baseline scenario for 2030. Based on the additional information provided, this translates into 27 Mtoe of

¹³ 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.

primary and 18.8 Mtoe of **final energy consumption** in 2030, which represent the projections of the scenario with additional measures (WAM)¹⁴. The proposed contributions for energy efficiency are substantially above the 2020 target levels: the primary energy consumption level is much higher – accounting for the impact of nuclear power which will to some extent replace imports of electricity – while the final energy consumption level is similar to the 2017 data. These contributions are of very low ambition compared to what is expected at the EU level to collectively reach the Union’s 2030 energy efficiency targets.

The draft plan explains that expansion of industrial production, higher fuel consumption resulting from an increase in income and a decline in population would affect energy consumption in the future. The GDP growth will also be an important factor and it is expected that Hungarian GDP would be 76 % higher in 2030 than in 2015. The expected growth rate is above the projections of the 2018 Ageing Report¹⁵.

The comparison of the scenarios indicates that, with the additional measures, final energy consumption would be lower by around 7 % than with existing measures. The biggest savings would be achieved in the residential sector (~ 20 %) and the lowest in industry. Additional measures are, however, not sufficient to reduce final energy consumption, which is expected to grow by 7 % in 2030 compared to 2015.

In terms of **policies and measures**, the draft plan seems to focus on areas, which could provide a good basis for further defining operational policy measures. More details on timelines, the expected savings and impacts would benefit the solidity of the final plan.

Hungary announces the introduction of an energy efficiency obligation scheme with a pilot project to be developed in 2019. The obligation scheme could include a large-scale public private finance Energy Service Companies (ESCO) programme for improving the energy efficiency of public **buildings**, a multiannual large-scale energy building programme and measures in the transport sector.

Furthermore, for the **transport** sector, the draft plan sets a target to limit the growth of energy used to 38 % from 2015 to 2030. This is to be achieved through promotion of electromobility and measures supporting lower fuel consumption of combustion engine vehicles. The final plan would benefit from covering also 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 and automation).

Finally, the draft plan only presents some indication of expected savings per end-use sector without linking them to the measures presented. The final plan could include more details on the proposed policies and measures and savings they are expected to deliver, particularly in relation to Hungary’s long-term renovation strategy.

¹⁴ The past data in the modelling used in the draft plan for primary energy consumption correspond to gross inland consumption, so the WAM projections for 2030 were corrected by deducting projected final non-energy use of 3 Mtoe.

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

Dimension energy security

The objectives of **energy security** are appropriately formulated. Current policies are well described, including references to fulfilment of current targets. Timeframes need to be added in the final plan.

Hungary is a net importer of fossil fuels and electricity; energy imports covered around 53 % of the energy consumption in 2015. Nuclear represents 17.1 % of Hungary's energy mix¹⁶ and the country plans to further develop nuclear capacities by building two new units of 1 200 MW each by 2030 (Paks II). The final plan would benefit from providing information of the foreseen lifetime of existing reactors and from showing how supply of nuclear fuel will be ensured for the existing and planned additional units and discuss its diversification as a means to enhance security of supply.

A high exposure to gas imports and a single supplier represent a security of supply risk notwithstanding the significant gas storage capacities of the country. Against this background, the draft plan outlines that ensuring continuous and cost-effective energy supply security is a priority objective alongside further market integration. Thus, strengthening of supply diversification efforts is an important objective. Developing renewable energy is another avenue for ensuring supply security, and the draft plan acknowledges the link between renewable energy development and the need to improve system flexibility, including by addressing regulatory issues by means of the objective of creating a new vision for the electricity market. This would benefit from being further detailed in the final plan, including as regards elements such as demand response and energy storage, and having in mind recently adopted EU legislation on electricity market design.

Adding cybersecurity elements would also provide added value to the final plan, notably considering Hungary's intention to promote digitalisation and smart equipment as part of developing the new Energy Strategy. Furthermore, the description of policies and measures to reach the objectives would need to be concrete and detailed, considering impacts and prioritisation.

Dimension internal energy market

The **gas and electricity infrastructure** development projects are well described or referenced. In terms of **electricity interconnectivity**, Hungary's current level is above 15 %, and the draft NECP does not indicate the level Hungary aims for in 2030. Nevertheless, Hungary has the objective to further increase cross-border capacities considering that its average wholesale electricity price was significantly higher than that of neighbouring countries. Making use of the available import capacities is furthermore considered a means for ensuring electricity system flexibility against the background of the foreseen increased penetration of renewable energy.

The draft plan also includes the objective to deepen the internal market by establishing harmonised market rules, but remains rather generic. Consequently, in the final plan, a description of Hungary's participation and future ambitions in electricity market coupling, regional congestion management and balancing cooperation could be added. Relevant policies and measures from the upcoming Energy Strategy are expected to be adequately covered in the final NECP.

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

¹⁶ Energy factsheet Hungary, Staff Working Document accompanying the Third Report on the State of the Energy Union, SWD (2017) 386 final.

measures and timelines merit being included in the final plan. Adding key elements to describe the functioning of the retail market – such as the number of suppliers, market share, market concentration levels, indicators for market liquidity such as traded volumes and market participants or switching rates – would also benefit the completeness of the final plan.

When it comes to increasing system flexibility, the draft NECP states that the upcoming Energy Strategy will define the regulatory framework for encouraging demand response, the use of innovative technologies and electricity storage in batteries. Furthermore, the development of smart metering systems and a shift to digitalisation in consumer administration are strategic objectives for Hungary to ensure consumer participation in the energy system. The final plan could be strengthened by including a concrete target for smart meter deployment, including a timeline, as well as further details on the role Hungary foresees for digitalisation.

Hungary has not carried out the dedicated assessment of **energy poverty** required by the Governance Regulation¹⁷. The draft NECP states that Hungary addresses energy poverty through universal service and universal price for those affected. In order to address energy poverty, Hungary sees a need for a complex strategy which, among others, would aim at improving energy efficiency, increasing the penetration of “backyard” heating solutions and electricity generation, and optimisation of the modes of supply. Energy poverty elements should be further elaborated in the final plan.

Dimension research, innovation and competitiveness

Energy efficiency research and development is indicated as currently the most important area for research and development. Expenditure for the development of energy efficiency and other cost reduction technologies accounts for 78 % of the total energy research funding. Based on this welcome information provided in the draft NECP, the final plan needs to substantiate Hungary’s commitment towards **research and innovation** by including specific objectives and measures and funding targets in the research, innovation and competitiveness dimension. The final plan would also benefit from providing further details on the results of the ongoing consultation process aimed to assess innovation opportunities.

Objectives related to the deployment of low-carbon technologies based on the upcoming Energy Strategy would also enhance the final plan, as well as providing guidance for investors. In the current forecast, under existing policy measures, in 2030 energy consumption in the industrial sector will be one third higher than the value for 2015.

The final NECP would benefit from presenting a comprehensive analysis on where the low-carbon technologies sector is currently positioned in the global market, including as regards decarbonising energy and carbon-intensive industrial sectors, 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.

3. COHERENCE, POLICY INTERACTIONS AND INVESTMENTS

Some policy interactions are already reflected in the draft plan mostly at the level of objectives, such as the need to ensure system flexibility considering the foreseen increased use of renewable energy, or the role of energy efficiency in maintaining sustainable energy costs for households.

¹⁷ Pursuant to Article 3.3(d) of Regulation 2018/1999.

Similarly, the link between energy efficiency measures and the development of renewable energy and ensuring energy security is referenced in the draft plan. All these elements warrant being further detailed and followed-up with concrete measures, which are also coherent across dimensions. The ongoing finalisation of the Energy Strategy presents the opportunity for the final plan to take into account policy interactions and duly reflect them in the policies and measures.

The application of the **energy efficiency first principle** is not explicitly elaborated in the draft plan, but it is indicated that Hungary intends to reduce its dependence on imports of hydrocarbons by placing emphasis on increasing energy efficiency.

The draft NECP has no information on how climate change risks might affect energy supply (e.g., draught and storms destroying biomass resources and power networks), despite the fact that Hungary's National Adaptation Strategy identifies the energy sector as a priority sector for adaptation. The final plan would therefore benefit from including information on adaptation co-benefits for energy efficiency, such as in the thermal management of buildings.

The draft Hungarian NECP provides very limited information on interactions with relevant policies like the **circular economy**. Considering the relevance for greenhouse gas emission reductions, the final plan could reflect better such interactions. The National Waste Management Plan could be mentioned and with it more comprehensive and concrete information on actions and targets could be included.

The plan would also benefit from an analysis of synergies and trade-offs of climate policy with **biodiversity** and the role of ecosystem services for mitigation and adaptation.

The draft plan lacks quantitative information on the interactions with air quality and air **emissions policy**, while the projected increase in bioenergy would make air impacts especially important to consider.

The final plan would also benefit from addressing in more detail the **just transition** and fair transition aspects, including in relation to coal and carbon-intensive regions in transition. This includes further considerations on the costs and benefits as well as cost effectiveness of planned policies and measures addressing just transition.

The draft NECP contains a partial assessment of the **investment needs** and expenditures, funding sources, and other relevant information. It is projected that achieving the national objectives would require around HUF 14,700 billion of building energy efficiency, renewable energy and electromobility investments (around EUR 45 billion, annually around 3.5 % of current GDP), with EUR 2.5 billion as estimated public investment aid. The identified barriers to energy efficiency investments are a limited building capacity, significant increases in the cost of building materials and construction costs in recent years. Information is not yet comprehensive enough to allow for an assessment of the investment needs until 2030. According to the draft plan, this information is to be provided in the course of 2019. The final plan could specify how Hungary would invest the revenues from the Modernisation Fund (22 million EU Emissions Trading System allowances, corresponding to EUR 440 million at a carbon price of EUR 20/t)¹⁸. Some investment needs could partly be covered by EU funds, in particular cohesion policy funding, notably in line with the investment analysis for 2021-2027 of the 2019 European Country Semester Report for Hungary and with any relevant legislation.

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.

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 Hungary, published on 27 February 2019¹⁹, the European Commission's recommendation for a Council recommendation for Hungary issued on 5 June 2019²⁰, in the context of the European Semester, highlights in particular the need to invest in 'low carbon energy and transport, energy and resource efficiency'. When preparing its overview of investment needs and related sources of finance for the final plan, Hungary should take into account these recommendations and links to the European Semester.

The description of **energy subsidies** principally focuses on the feed-in tariff system used for supporting renewable energies. It is mentioned that consumption of fossil fuels is not subsidised in Hungary. Based on internationally used definitions, the European Commission report on Energy Prices and Costs in Europe²¹ identifies energy subsidies in Hungary, including subsidies for fossil fuels. It would thus be important that the complete final plan includes a detailed description of all energy subsidies as well as of the national policies, timelines and measures to phase-out energy subsidies, particularly for fossil fuels.

4. REGIONAL COOPERATION

Hungary has started coordinating its draft NECP with Visegrad Group countries and Austria notably as regards renewable energy sources, climate change issues, energy efficiency, and internal energy market and energy security. Throughout 2019, Hungary plans to undertake further regional consultations and to present the results thereof in the final NECP.

Several elements described in the draft NECP are of relevance for regional cooperation and warrant further consultation and coordination. This includes security of supply related aspects such as risks to gas supplies linked to the Ukrainian supply route and the launching of the Romanian gas extraction in the Black Sea as an avenue envisaged for future diversification of supply. Impact of such issues on ongoing cross border infrastructure projects constitutes an additional topic that could be pursued in regional cooperation fora.

Regional cooperation also has a key role in assessing regional system adequacy as provided for in the Electricity regulation²². This will become even more important in light of the increasing shares of renewable energy and corresponding need for system flexibility.

Similarly, the impact of foreseen new build of nuclear capacities – an objective shared by several Member States in the region – on electricity interconnections and trading merits further consideration and should also be seen in conjunction with the increased share of renewable energy and the need to accommodate it in the system. Information on cooperation as regards possible statistical transfer of surplus or shortfall of production of energy from renewable energy

¹⁹ SWD(2019) 1016 final: Country Report Hungary 2019.

²⁰ COM(2019) 517 final: Recommendation for a Council Recommendation on the 2019 National Reform Programme of Hungary and delivering a Council opinion on the 2019 Convergence Programme of Hungary.

²¹ Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions: Communication on strengthening Europe's energy networks, COM(2019) 1.

²² Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity.

and intention of opening of support schemes would also benefit from being discussed in the final plan, including in a regional cooperation context. In addition, regional cooperation in the research and innovation dimension could facilitate the pursuit of common projects, including in the area of low carbon technology development.

5. COMPLETENESS OF THE DRAFT PLAN

Information provided

Overall, very few policies and measures are described in the draft plan and they are not sufficiently concrete. Therefore, the quality and completeness of the final plan would benefit from including policies and measures for all dimensions and providing information on quantified objectives, impacts, investment needs and timeframes.

The **decarbonisation dimension** of the draft NECP is partially complete with respect to the required information on **greenhouse gases**. While information on policies and measures is provided to some extent, the draft plan does not yet include an estimation of the emission trajectory with annual limits for the period 2021-2030 under the Effort Sharing Regulation (ESR)²³ and does not yet apply the accounting rules as set out in the Land Use, Land Use Change and Forestry (LULUCF) Regulation²⁴, including on projections. It also does not mention the LULUCF no-debit commitment.

The draft plan mentions Hungary's National Adaptation Strategy, but does not yet specify adaptation goals, nor describe policies and measures for adaptation to climate change.

For **renewable energy**, the draft plan follows the structure of Annex I and includes most of the required elements in particular for the national objectives and trajectories, also at the sector level, albeit the latter only as projections which take into account current policies and a few planned policies. Under objectives and targets, the draft plan does not indicate the split in the total installed capacity between new and re-powered capacity.

Trajectories for bioenergy demand, their disaggregation between heat, electricity and transport, trajectories on biomass supply by feedstock and origin, trajectories for forest biomass, and 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. Policies and measures that are described in the draft plan mostly refer to past support policies. Measures regarding power purchase agreements (PPAs) are not yet included.

The information presented as regards **energy efficiency** in the draft plan is incomplete. The national contribution is set in terms of 8-10 % reduction compared to the business as usual scenario, but this would require further clarification on methodology. There is no clear trajectory indicated for the targets as only a 2025 value is provided. Specific policies and measures in the area of energy efficiency are not described and their impact assessment is missing. There is also no information on objectives and savings for the renovation of central government buildings under Article 5 of the Energy Efficiency Directive²⁵ and required elements of the long-term

²³ Regulation (EU) 2018/842 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030.

²⁴ Regulation (EU) 2018/841 on greenhouse gas emissions and removals from land use, land use change and forestry.

²⁵ 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.

renovation strategy are also not included in the draft plan. An assessment of the potential of high efficiency co-generation and district heating and cooling systems is not included.

In relation to the energy **security and internal energy market dimensions** the draft plan is incomplete. Several objectives are described and plans for interconnection projects are presented, but market development related objectives remain rather generic, and, overall, timeframes are missing. Objectives and strategies to further develop competition in the market could be included in the final plan. The finalisation of the Energy Strategy pending, the draft plan does not include any concrete and detailed measures to achieve the objectives, but these are expected in the final plan.

Specific **energy poverty** objectives are not defined and the draft plan notes that as a result of measures taken since 2013 the household energy costs of Hungarian consumers are among the lowest in Europe. A general objective to maintain sustainable energy costs for households in the future is stated in the document.

The information provided in the **research, innovation and competitiveness dimension** is incomplete pending the finalisation of the Energy Strategy which is expected to determine the direction of energy innovation and relevant regulatory measures and financing opportunities. Consequently, the draft plan does not yet include national objectives and funding targets to be achieved by 2030 or specific measurable national objectives related to deployment of clean energy technologies and competitiveness.

Information is provided on the current level of public and private funding for research and innovation as well as on price components. However, no analysis has been provided as regards the current situation of low-carbon technologies sector.

Robustness of Hungary's draft National Energy and Climate Plan

The draft plan contains most of the required information of the analytical basis. It reports projections both with existing measures (WEM) and with additional measures (WAM) in the voluntary templates. The draft plan uses a mix of data sources, including Eurostat, the International Energy Agency the national energy authority (MEKH), the national statistical office (KSH) the Hungarian transmission system operator (TSO) (MAVIR) and the Ministry of Finance.

The **WEM and WAM projections** partly cover the five dimensions of the Energy Union. Additional information would be desirable on the following variables: (i) the differentiation of sectoral greenhouse gas emissions between those covered by the EU Emissions Trading System (ETS) and those falling under the Effort Sharing Regulation²⁶, (ii) non-greenhouse gas air pollutants, (iii) electricity interconnection levels and (iv) more complete energy-related investment needs.

The projections are presented in a largely **transparent** way: all key parameters except for transport modes have been provided including sources. Moreover, the draft plan contains a separate annex describing the modelling approach. The transparency of Hungary's draft plan could be further strengthened by attributing more systematically individual policies and measures to the WEM or the WAM scenario. Furthermore, the final plan could clarify which measures

²⁶ Regulation (EU) 2018/842 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030.

were considered in the scenarios, the criteria underpinning their selection and how the other reported measures were considered.

The **impact assessment** touches upon policies and measures related to greenhouse gas emissions, renewable energy and energy efficiency, comparing WEM against WAM projections. It also contains an overview of investment needs. The full impact assessment is announced to be provided in the final version of the plan. It 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. This could be further improved by providing an assessment of the impact of policies and measures on (i) research, innovation and competitiveness, and (ii) other Member States. Information on the impact and timelines of individual policies and measures would also benefit the final plan, in particular as regards the planned ones.

Key model parameters are calibrated to EUROSTAT figures for the base year 2015. Primary energy consumption for the base year 2015 as reported in the draft NECP is in line with gross inland consumption reported by EUROSTAT. Lastly, the draft plan follows its own assumptions with regard to fuel and EU ETS prices.