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COMMISSION STAFF WORKING DOCUMENT

Assessment of the draft National Energy and Climate Plan of Finland

Accompanying the document

Commission Recommendation

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

{C(2019) 4426 final}

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1. SUMMARY

Main observations¹

- ✓ Finland's draft integrated National Energy and Climate Plan (NECP) is based upon two existing Government documents, the National Energy and Climate Strategy for 2030 of 2016 and the Medium-term Climate Change Plan for 2030 of 2017. The starting point for Finland's strategy is to look at energy and climate policy in different sectors from the **perspective of emission reductions, energy policy, growth and employment**, taking into account national circumstances such as cold climate, long transport distances, extensive energy-intensive industry and domestic raw material resources, especially forest biomass.
- ✓ Finland's 2030 target for **non-ETS greenhouse gas emissions** is -39 % compared to 2005 as set in the Effort Sharing Regulation (ESR)². Based on information provided in the draft plan on decarbonisation, the existing and planned policies and measures together with the indicated use of flexibilities could be sufficient for Finland to meet its target. If implemented, the planned additional policies may deliver significant emission reductions, notably in transport and agriculture, while a smaller impact is expected in the buildings sector. Given the emphasis on bioenergy, the sustainability of biomass and the impact on the carbon sink deserves attention in the final plan.
- ✓ With respect to the **LULUCF** sector, more information is needed to assess whether Finland would comply with the no-debit commitment over the period until 2030. Quantifying the expected gap between ESR emissions and targets without additional policies and the greenhouse gas reductions from additional policies and measures throughout the period 2021-2030 will benefit the final plan.
- ✓ Finland proposes a contribution to the EU renewable energy target with a 50 % share of **energy from renewable sources** in gross final consumption of energy in 2030, making Finland one of the EU frontrunners in renewable energy. Yet, this level of ambition is slightly below the share of 51 % 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 that reaches all reference points³ in accordance with the national contribution in the final plan. The proposed renewable energy share in the transport sector is 32 %. The 'with additional measures' scenario provided by Finland demonstrates attainment of the national contribution to the EU renewable energy target for 2030. However, further details on planned policies and measures will benefit the final plan. 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.

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

- ✓ Finland envisages a slight increase of both primary energy consumption and final energy consumption for 2030. The proposed contribution towards the 2030 collective EU **energy efficiency** targets is low considering the collective effort needed. The revision of the Energy Efficiency Act⁴ is an opportunity to reconsider the contribution towards the EU target, to reflect the energy efficiency potentials in the scenarios, but also to consider additional policies and measures beyond the transport sector.
- ✓ As regards **energy security**, Finland has put forward several concrete targets, such as a target of 55 % self-sufficiency for energy by 2030, a prohibition of use of coal for energy by 2030 and a reduction of the usage of imported oil by 50 %. The final plan would benefit from more detailed information on this dimension including as regards measures envisaged view to the foreseen role of nuclear generation capacity.
- ✓ Finland is already above the EU **interconnection** level and it aims to keep the interconnectivity above 15 % in 2030. Nevertheless, the need for additional information is also present in the **internal market** dimension. The additional indicators accompanying the interconnection target remains to be clarified in the final plan. The final plan would also benefit from specific and forward-looking objectives and targets relating to this dimension.
- ✓ Information is provided on the general direction and budget for energy related **research, innovation and competitiveness**. The final plan would benefit from additional insights, in particular regarding specific research and innovation objectives and a description of policies and measures until 2030.
- ✓ The draft NECP includes incremental **investment needs**. The quantified investment needs correspond to 1.5 – 2 % of GDP per year, notably in the electricity network. The final plan would benefit from including also overall figures for energy related investments thus fully taking advantage of the role NECPs can play in providing clarity to investors and attracting additional investments in the clean energy transition.
- ✓ **Regional cooperation** across the Energy Union dimensions is already taking place between Finland and neighbouring Member States. There is potential for intensifying the existing cooperation arrangements between Nordic countries, especially in the internal market and energy security dimension, extending them to new areas and broadening the geographic reach to include the Baltic States.
- ✓ The final plan would benefit from complementing the analysis of the interactions with **air quality and air emissions** policy, and presenting impacts of policies and measures on air pollution.
- ✓ The issue of a **just and fair transition** to a climate neutral economy could be better integrated throughout by considering social, skills and employment impacts.
- ✓ A detailed list of all **energy subsidies** and actions undertaken and planned to phase them out, in particular for fossil fuels, needs to be included in the final plan.
- ✓ The impact assessment includes estimates of how achieving the climate and energy targets will affect GDP and employment, which can be considered a **good practice**.

⁴ Energiatehokkuuslaki 1429/2014.

Preparation and submission of the draft plan

Finland notified its draft National Energy and Climate Plan (NECP) to the European Commission on 20 December 2018.




The Ministry of Economic Affairs and Employment developed the draft plan, and the process was steered by the Ministerial Working Group on Bioeconomy and Clean Solutions. The National Energy and Climate Strategy and the Medium-term Climate Change Plan were both subject to **public consultations** and discussions in the national Parliament. In addition to the public consultation, the draft national plan notes that stakeholders have been involved in several expert events, seminars and workshops. Citizens participated in online surveys relating to different elements of the National Energy and Climate Strategy for 2030 and the Medium-term Climate Change Plan for 2030.

Finland consulted **neighbouring Member States** on the development of the draft NECP, including within the Nordic Council of Ministers.

Finland foresees a public consultation of the NECP foreseen when preparing the **final plan**.

Overview of the key objectives, targets and contributions

The following table presents an overview of Finland's objectives, targets and contributions under the Governance Regulation⁵:

	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	-16	-39	As in ESR
	National target/contribution for renewable energy: Share of energy from renewable sources in gross final consumption of energy (%)	41	38	50	Below 51 % (result of RES formula)
	National contribution for energy efficiency: Primary energy consumption (Mtoe) Final energy consumption (Mtoe)	31.7 25.2	35.9 26.7	36.1 26.2	Very low Very low

⁵ 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.



Level of electricity interconnectivity (%)

29

19

>20

N/A

Sources: EU Commission, ENERGY STATISTICS, Energy datasheets: EU28 countries; SWD(2018)453; European Semester by country⁶; COM/2017/718; Finnish 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 plan includes Finland's long-term objective to reduce its GHG emissions by 80-95 % by 2050, which is consistent with its low carbon development strategy. A discussion of consistency of policies with the target of climate neutrality by 2045 set by the Government, would benefit the final plan.

Finland's **non-ETS target** is -39 % by 2030 compared to 2005. According to the draft plan, this corresponds to 20.6 Mt CO₂eq maximum emissions in 2030. The starting point of the linear trajectory for 2021-2030 is estimated to 30.2 Mt CO₂eq. With existing measures this results in a gap of about 5 Mt CO₂eq in the year 2030.

The draft plan describes additional policies and measures to cover the gap between the WEM projection and ESR emission target in 2030. The draft plan also substantiates the intended use of some ESR flexibilities, including the flexibility between ETS and ESR, which is available to Finland, and which it intends to use to the maximum amount, i.e. 0.7 Mt CO₂eq per year. With the indicated use of flexibilities, and the existing and planned policies and measures, Finland would achieve its non-ETS target in the year 2030, if no LULUCF debit needs to be covered.

For the **transport** sector, which accounts for 40 % of Finnish effort sharing emissions, Finland has an ambitious sectoral target to reduce GHG by 50 % by 2030 (see also below). While briefly addressed, little detail on the policy measures to promote alternative fuels is provided, especially with respect to **electromobility**. The final plan should contain a description of a coherent policy towards clean vehicles and vessels (for all alternative fuels) and the corresponding infrastructure. The draft plan refers to the Common Agricultural Policy as a tool for reducing greenhouse gas emissions from **agriculture**.

The draft plan includes some discussion of historical and future emissions and removals in the **LULUCF** sector, for which a significant sink is reported but which could turn into a debit in accounted terms. With respect to the National Forestry Accounting Plan including the national Forest Reference Level, submitted by Finland as required by Article 8(3) of the LULUCF

⁶ 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.

Regulation⁷, the Commission has put forward substantial technical recommendations requesting action on a range of issues, detailed in SWD (2019) 213.

The draft plan mentions Finland's Climate Change Adaptation Plan 2022. A description of specific goals or measures on adaptation would benefit the final plan.

Renewable energy

Finland proposes a 50 % **renewable share** in gross final consumption of energy for 2030. The proposed contribution is slightly below the share of 51 % that result from the formula in Annex II of the Governance Regulation.

The draft plan includes an **indicative trajectory** for the overall renewable energy target for the years 2022, 2025 and 2027. The draft plan includes an **indicative trajectory** for the overall renewable energy target for the years 2022, 2025 and 2027; without reaching the reference points of 18 % by 2022, 43 % by 2025. The draft plan also provides estimated trajectories for the sectoral share of renewable energy in final energy consumption from 2021 to 2030 in the electricity, heating and cooling, and transport sectors.

In 2030, the draft plan provides a share of **renewable electricity** around 45%, where biomass and hydropower continue to be the main sources, followed by wind power. In the **heating and cooling sector**, the share of renewable energy will be around 64 % with biomass accounting for around 90 % of the total renewable energy, followed by heat pumps. The role of waste heat is not included.

Finland has an ambitious target to reduce **GHG in the transport sector** by 50 % by 2030 compared to 2005 and the draft plan includes a **sectoral share of renewable energy in transport** of 32 %. However, the calculation of the respective trajectory needs to include the required multipliers. In road transport, the draft plan sets a target of 30 % of renewable energy share of final consumption. Moreover, Finland has set a target for 30 % share of biofuels, and goals for 250,000 electric and 50,000 gas-powered vehicles on the market by 2030. In this regard, the final plan should put forward the calculation of the transport target as requested in Articles 25-27 of Directive 2018/2001 on renewable energy⁸.

The draft plan mentions an energy aid scheme will be applied to promote **renewable energy**, targeted at the commercialisation of new technologies and to the non-ETS sector. It also notes that a feed-in tariff exists since 2011 as well as a feed-in premium based on a competitive tendering process. The final plan would benefit from providing forward-looking planning for renewable electricity capacity or budget to be supported through the schemes.

Policies and measures to promote **self-consumption** and measures to promote **renewable energy communities** could be further detailed by elaborating on the regulatory and capacity-building support to regional and local authorities.

⁷ 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.

⁸ 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.

Dimension energy efficiency

Finland sets a national contribution to the EU28 energy efficiency target for final energy consumption of not more than 26.2 Mtoe and of no more than 36.1 Mtoe by 2030 for primary energy consumption.

The target is set at a level which would allow the country to increase its consumption by 0.7 % from their primary energy consumption in 2017 and to only marginally decrease final energy consumption (-1.6 %, EUROSTAT data). Such a trend appears to contradict the collective EU effort needed to achieve the EU 2030 target. There is a specific goal for energy efficiency for the transport sector, for which consumption would have to decrease from the current 47 TWh per year to about 41 TWh per year.

The target for 2030 is also set at a higher level as compared to Finland's 2020 energy efficiency target, both for primary and for final energy consumption (+13.9 %, +4.2 % respectively). This appears to be consistent with the expected increase in the economic activity which is considered a factor influencing the future trend in energy consumption. However, the historical and projected GDP data used is higher than the one used by recommended official statistical sources.

Overall, the contributions of Finland is unambitious considering the need to increase efforts at the EU level to collectively reach the Union's 2030 energy efficient targets.

The draft NECP mentions that policies and measures for the period 2021–2030 will be updated in connection with the reform of the energy efficiency act (*energiatohokkuuslaki 1429/2014*) during 2019, and therefore information provided in the draft plan is provisional. The draft plan provides a list of key sectoral policies and measures and considers that existing measures are sufficient for the proposed level of ambition, with the exception of the transport sector, for which additional measures are foreseen. However, in some cases, the measures presented aim at supporting the deployment of renewable energy, and would have therefore no impact in terms of final energy savings.

The plan mentions the National Energy and Climate Strategy and the Medium-term Climate Change Plan that are designed to help reduce total energy consumption in transport. Several measures in place are mentioned, aimed at improving the energy efficiency of the transport system, but without going in detail. The final plan would benefit of more detail on the existing and planned measures (e.g. incentivising multimodality and modal shift⁹, intelligent transport systems, digitalisation and automation)

Dimension energy security

Finland has put forward a target of 55 % self-sufficiency for energy by 2030, and a reduction of imported oil by 50 %.

The foreseen development of the Finnish energy mix by 2030 will also affect energy security in relation to the electricity market; Finland is highly dependent on the EU electricity market as there is a significant difference between installed capacity and peak load. Hence, there is a high

⁹ For example, when completed, Rail Baltica will be a new route for Finnish transport to key markets. Finland intends to intensify cooperation with Baltic countries by taking part in the Rail Baltica Rail AS joint venture. Through its partnership in the venture, Finland will promote the development of the core network corridor from Helsinki to the north.

level of integration in the Nordic electricity markets and several interconnectors to the Nordic market are planned. The final plan will benefit from an analysis of possible imports from neighbouring countries in the regional context, looking also at the adequacy and export capacities of the neighbouring countries.

In this context, it is also important to consider how electricity generation adequacy will be ensured in light of the renewable energy contribution, including on demand response and storage. In this regard, information on the lifetime of existing and planned nuclear reactors is relevant. Since Finland proposes a target of 55 % self-sufficiency, information on the strategy for ensuring the long-term supply of nuclear fuel and on the exploitation potential of domestic deposits of uranium is expected.

Implementation of the Risk Preparedness Regulation, including measures on cybersecurity as well as existing preventive action and emergency plans for gas, measures addressing import dependency and diversification, and reference to planning under the Oil Stocks Directive would enrich the final plan.

Dimension internal energy market

Finland set a target to keep the level of electricity interconnection above 15 % for 2030. However, it is unclear the methodology used for the calculation of the **interconnection level**, and what measures will be put in place to enable the delivery of the key Projects of Common Interest.

Regarding the **wholesale market**, the targets or objectives in relation to coupling with the Baltic electricity market are needed, as well as information on the dynamics of the electricity market and the Nordpool Spot market. A high-level overview of gas market developments is provided, which needs to be substantiated with concrete indicators, upon which future objectives for other aspects of market integration can be benchmarked.

Regarding the **retail market**, the government bill concerning a datahub of the electricity market and price comparison tools are mentioned as general policies to improve consumer protection and competitiveness. Energy advisory services are highlighted as a means of promoting demand response. Nevertheless, no specific objectives, policies or measures are provided in terms of real-time price signals, increase of system flexibility, demand response and aggregation, smart meters, storage, consumer protection, competitiveness in the retail energy sector. Good note is taken on the description of tax incentives for distributed generation.

Regarding **energy poverty**, the draft plan indicates that it affects only a small proportion of households in Finland. However, the final plan would benefit from an improved description of the current situation, in particular on how social policies allow targeting energy poverty and the role that energy efficiency measures will play in this context.

Dimension research, innovation and competitiveness

The draft plan mentions the budgetary commitment made under Mission Innovation – which seems however to be in contrast with the overall dynamics of the funding for research and innovation in low carbon technologies.

The timeframe, budget and specific objectives of the smart energy programme under Business Finland are not clear, in particular regarding the post 2020 period. Finnish participation in the **Strategic Energy Technology (SET) Plan** is mentioned without making clear how Finland sees

its role in implementing the SET Plan and which financial resources it intends to make available into agreed research priorities. In line with the binding template, the final plan needs to include specific research and innovation objectives and a description of policies and measures until 2030, so it is possible to understand how these will contribute to collectively achieving the Energy Union objectives under this dimension.

The final plan needs to include in particular industrial innovation pathways and funding programmes, which are currently absent from projections to 2030. As a result, industrial GHG emissions are expected to remain at a similar level in 2030 (11Mt) compared to 2016 (10.3Mt). The NECP would benefit from presenting a comprehensive analysis on where the low-carbon technologies sector, including for decarbonizing energy and carbon-intensive industrial sectors, is currently positioned in the global market, 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

The draft NECP identifies several policy interactions from some of the proposed policies and measures. While it recognises some effects it often falls short of proposing solutions to address them. For example, the draft plan foresees the installation of large wind farms which will require the strengthening of the electricity grid both at local and national levels. However, projections of network expansion requirements do not seem to include this element. Another example is on the ambition to phase-out coal by 2030 in the energy sector and halve domestic use of imported oil for the domestic needs during the 2020s. For achieving this, it is estimated that in 2030 the amount of forest chips in heat and electricity production will increase by more than 50 % compared to the current level. However, the draft plan assumes the increase in demand will be met by forest residues associated with the management of young forests without impact on the overall carbon sink, which need further explanation also in the context of increased demand for biofuel feedstocks for achieving the targeted 30 % biofuel share in transport. The final plan would benefit from addressing how climate change risks might affect energy supply (e.g., wildfires and storms destroying biomass resources and power networks, availability of hydropower) and climate change adaptation concerns for energy efficiency, such as in the thermal management of buildings.

The draft NECP contains a designated section explaining how the **energy efficiency first** principle contributes to the national goals of a competitive low-carbon economy and security of energy supply. This section could further detail on how the principle was taken into account in the eligibility criteria for renewable energy support, and also on how the principle is applied in the internal energy market and energy security dimensions.

Considering the relevance for greenhouse gas emission reductions, the final plan could reflect interactions with the **circular economy**, drawing on the national roadmap for circular economy published in 2017.

The plan has very limited information on interactions with **biodiversity** policies, synergies and trade-offs. Biomass will continue to be predominant in the energy mix, and it will even expand (e.g. new investments on district heating and cooling infrastructures). The final plan should analyse the impacts of this policy from the point of view of sustainable supply and biodiversity.

The draft plan lacks quantitative information and analysis about the interactions with **air quality** and air emissions policy.

The issue of a **just and fair transition** to a climate neutral economy could 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 (and energy poverty) and revenue recycling. As regards **skills and training**, the plan omits any indications of training measures while a commitment to training activities is made without any detail.

Regarding **investment needs**, the draft plan includes incremental investment needs. The largest quantified investment needs are in the security of supply of electricity networks. Total investments by grid companies amounted to EUR 9.5 billion in 2016 to 2018 and an increase of 10-40 % is expected for the period 2018-2028. The European Commission estimates that this corresponds to investments in the order of magnitude 1.5 - 2 % of GDP per year.

Other quantified investment needs amounts to approximately 2.7 billion Euro by 2030, with significant uncertainties. The European Commission estimates that this corresponds to investments in the order of magnitude 0.1 % of GDP per year.

The final plan would benefit from including also overall figures for energy related **investments** for the economy (in % of GDP) and for industry (in % of value added). For example, the investment needs for biofuel production, as well as for renewable electricity generation from wind power is presented, but figures are presented for other measures needed to deliver the foreseen renewable energy contribution by 2030. The description of the methodologies used to assess the investment needs would benefit more detail.

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 Finland, published on 27 February 2019¹⁰, the European Commission's recommendation for a Council recommendation for Finland issued on 5 June 2019¹¹, in the context of the European Semester, highlights in particular the need to invest in '*low carbon and energy transition and sustainable transport*'.
- When preparing its overview of investment needs and related sources of finance for the final plan, Finland should take into account these recommendations and links to the European Semester.

The draft plan provides descriptions of **energy subsidies** measures although sometimes in a generic way. The European Commission report on Energy Prices and Costs¹² has also identified energy subsidies in Finland, including fossil fuel subsidies. It would be important that the final plan includes a detailed description of energy subsidies as well as the national policies, timelines and measures to phase out energy subsidies, in particular for fossil fuels.

¹⁰ SWD(2019) 1025 final: Country Report Finland 2019.

¹¹ COM(2019) 526 final: Recommendation for a Council recommendation on the 2019 National Reform Programme of Finland and delivering a Council opinion on the 2019 Stability Programme of Finland.

¹² Commission Staff Working Document Accompanying the Document Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Energy prices and costs in Europe, COM(2019) 1.

4. REGIONAL COOPERATION

Regional cooperation across the Energy Union dimensions is already taking place between Finland and neighbouring Member States. There is potential for intensifying the existing cooperation arrangements between Nordic countries, extending them to new areas and broadening the geographic reach to include the Baltic States.

There is significant potential for further cooperation in the internal energy market and energy security areas, including in assessing regional system adequacy as foreseen in the Electricity regulation¹³. This will become even more important in the light of the changes in the electricity system accommodating higher shares of renewable energy and electricity imports, and characterised by an increased need for flexibility.

In the consultation process on the draft Finnish NECP, Estonia stressed the need for closer regional cooperation on generation adequacy and electricity market integration. Due to the expected shutdown of Estonian oil shale generation capacities, combined with an increase in intermittent renewable generation, there are concerns with ensuring electricity generation adequacy, with implications for the regional electricity market. Thus, developing electricity market services on a regional scale and increasing the level of flexibility is important for Estonia and the other Baltic States. The draft Finnish NECP recognises the importance of involving the Baltic States in the discussions on adequacy, and commits to undertaking a risk assessment study, including an assessment of the regional electricity generation adequacy.

In addition to cooperation in the electricity market, the creation of a regional gas market comprising Finland and the Baltic States from 2020 will contribute to reducing the dependency on natural gas imported from third countries and opening the market for competition.

Research is another area in which regional cooperation based on the NECPs could effectively be pursued further, taking into account the work of existing cooperation platforms such as the Nordic Energy Research can be effective in promoting the achievement of Energy Union objectives of driving the energy transition and improving competitiveness. The Nordic Energy Research (NER) cooperation platform facilitates an interaction between research strategies, results and key technical issues on the political agenda, as well as funding research of joint Nordic interest. It has a key role to play in expanding knowledge on sustainable energy and contributing to the development of new, competitive energy solutions.

Decarbonisation of the transport sector plays a significant role in achieving the long-term climate and energy targets. The Nordic countries aim to intensify cooperation to reduce transport emissions, for example, by developing a shared set of target indicators relating to different emissions reduction measures. Therefore, further coordination with the Baltic States could be highly beneficial as part of regional cooperation on the final plans, for example in light of the fact that Finland plans to increase the number of electric and gas vehicles, while Estonia puts more focus on vehicles using bio-methane, or considering the importance of harmonised development of the charging and refuelling infrastructure to enable the usage of electric and gas vehicles on both sides of the Gulf of Finland.

¹³ Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity.

In May 2017, the Clean Energy for EU Islands Initiative was launched, aiming at accelerating the clean energy transition by helping islands reduce their dependency on energy imports and making better use of locally available renewable energy sources. It also provides a forum for exchange of best practices and aims to promote modern and innovative energy systems and reduce greenhouse gas emissions on islands. Although Finland is a signatory to the political declaration for this initiative, it has not mentioned this in the draft NECP. Finland could consider doing so in its final plan, and enhance cooperation with other Member States and island regions.

5. COMPLETENESS OF THE DRAFT PLAN

Information provided

The submitted draft NECP is consistent with the template for national energy and climate plans¹⁴. National contributions and targets for 2030 are available as regards GHG emission reduction, renewable energy and energy efficiency. There is a variable level of detail as regards policies and measures underpinning the targets and objectives in the draft plan.

As regards the **decarbonisation dimension**, projections on Land Use, Land Use Change and Forestry (LULUCF), are missing. The draft plan does not apply the accounting rules as set out in the LULUCF Regulation¹⁵, which are necessary to assess whether Finland would achieve its overall non-ETS target. Given the significance for Finland of emissions and removals in the LULUCF sector, this would need to be addressed in the final plan.

The elements regarding **renewable energy** provided in the draft plan should have been more detailed in order to provide investment certainty. For example, while the draft plan provides estimated trajectories for the sectoral share of renewable energy, it only partially provides estimated trajectories by renewable energy technology. Investment certainty could also be enhanced by providing total planned installed capacities. Planned capacities are not provided and should be split between new and re-powering. Information was not included for the increase of 1 percentage points of renewable energy share in district heating and cooling and related infrastructure. There is no inclusion of trajectories on biomass supply, by feedstocks and origin and trajectories for forest biomass, an assessment of its source and impact on the LULUCF sink, which is however especially important given the prominent role of bioenergy in the draft NECP.

On **energy efficiency**, policies and measures are listed but would benefit from details on timelines, costs and benefits. Foreseen energy savings are not fully developed, including the information on the removal of regulatory barriers and on making use of efficiency potentials in the electricity and gas infrastructure. The cumulative amount of end-use energy savings to be achieved over the period 2021-2030 is missing¹⁶, as well as the target related to the renovation of public buildings¹⁷. The draft plan acknowledges that there is a significant energy saving potential in the building sector; however, the contribution of the building sector to the Union's 2030 energy

¹⁴ Annex I of the Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action.

¹⁵ Regulation (EU) 2018/841 on greenhouse gas emissions and removals from land use, land use change and forestry.

¹⁶ Article 7 of the 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.

¹⁷ Article 5 of the Directive 2012/27/EU on energy efficiency.

efficiency target and other key elements of the long-term renovation strategy¹⁸ are not available. No information is provided about cost-optimal minimum requirements of buildings¹⁹.

While the draft plan provides objectives on **energy security** regarding diversification and reduction of energy dependency it is rather limited regarding the measures that will ensure the achievement of these objectives. The final plan will benefit from further information on objectives and policies and measures to ensure flexibility and resilience in national and regional energy systems.

On the **internal energy market**, the draft NECP contains core information on the functioning of the national retail and wholesale gas/electricity markets. In addition to the target on interconnection, the final plan would benefit from additional specific and forward-looking objectives and targets. Additional information on elements concerning market integration would be necessary to understand how Finland intends to implement recent market design legislation, in particular regarding system flexibility. On infrastructure, the draft does not include indicators on peak load, installed capacity, installed capacity of renewable energy, and specific measures for increasing tradable capacity on interconnectors, which would provide a complete picture on the internal energy market.

As regards the **research, innovation and competitiveness** dimension, the draft plan is largely concentrated on the present situation and recent developments. It does not provide specific objectives or funding targets beyond 2020 and up to 2030.

Robustness of the Finnish draft National Energy and Climate Plan

The required elements of the **analytical basis** all are addressed in the draft plan, however some parts of the analysis can be further elaborated. The with existing measures (WEM) and a with additional measures (WAM) scenarios have been provided. The data sources used include Statistics Finland, Eurostat, The Natural Resources Institute Finland and the National Energy Authority.

Some of the required elements of the model based **WEM and WAM projections** are detailed. For example, the WEM projections largely cover the five dimensions of the Energy Union. However, detailed numerical data in time series on the following variables would benefit the final plan: (i) sectoral GHG emissions per IPCC sector, (ii) sectoral GHG emissions per IPCC gas, (iii) sectoral GHG emissions split between those covered by the EU ETS and those falling under the Effort Sharing Regulation, (iv) GHG emissions from international aviation, (v) GHG emissions and sinks from LULUCF, and (vi) non-GHG air pollutants.

The model-based projections are presented in a **transparent** way in most instances. While the plan includes all key model input parameters, more information on assumptions used would benefit the final plan, such as the number of households, passenger kilometres, freight ton kilometres, heating and cooling degree-days. This could be done by submitting the Annex I part 2²⁰ voluntary template on parameters and variables as part of the final plan. The plan references

¹⁸ Article 2a of the Directive [2010/31/EU](#) of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings as amended by Directive (EU) 2018/844.

¹⁹ Article 4 of the Directive [2010/31/EU](#) on the energy performance of buildings.

²⁰ Regulation (EU) [2018/1999](#) on the Governance of the Energy Union and Climate Action.

the sources of the data and the models used. Transparency could be improved further if numerical values for key model parameters are reported for other years beyond the base year (2016).

GDP projections are in line with EUROSTAT figures for the base year 2016. The plan follows the international fuel and EU ETS carbon price assumptions recommended by the Commission, and the references contain some information on the robustness of the different underlying models.

Finland has also provided an impact assessment of planned policies and measures, which has still limited information on the macroeconomic, social and environmental aspects. 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.