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COMMISSION STAFF WORKING DOCUMENT

Assessment of the draft National Energy and Climate Plan of the United Kingdom

Accompanying the document

Commission Recommendation

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

{C(2019) 4428 final}

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1. SUMMARY

Main observations¹

- ✓ The United Kingdom's draft integrated National Energy and Climate Plan (NECP) focuses on the UK's domestic climate targets and is based on existing energy and climate policy documents, notably the **Clean Growth Strategy up to 2050**. While it considers the UK's domestic climate ambitions and standards as more ambitious than its obligations under EU law, it does not follow the requirements set out in the Governance Regulation² and does not mention EU legislation in any of the Energy Union dimensions.
- ✓ The main drivers of UK's energy and climate policy are carbon budgets – legally binding five-year emission caps, which need to be set 12 years in advance. The third, fourth and fifth budgets represent the years 2018-2022, 2023-2027 and 2028-2032, and commit the UK to **greenhouse gas emission reductions** of 37 %, 51 % and 57 %, respectively, compared to 1990.
- ✓ Achieving the UK's domestic target set in the fifth carbon budget, would also likely achieve the **2030 target** of -37 % greenhouse gas **emissions** compared to 2005 for sectors outside the EU Emissions Trading System (**non-ETS**) set under the Effort Sharing Regulation (ESR)³. However, it is unclear if existing and planned policies, which are only set out for the transport and buildings sectors, are sufficient to achieve the ESR target and the no-debit commitment under the Land Use, Land Use Change and Forestry (LULUCF) Regulation that accounted removals do not exceed accounted emissions⁴.
- ✓ The UK has not provided a contribution to the EU's 2030 target for **renewable energy**, nor any of the other main elements of the national objectives and trajectories. The overall contribution expected by the formula contained in Annex II of the Governance Regulation⁵ is 27 %. Apart from a clear overall contribution, an indicative trajectory that reaches all required reference points⁶ would need to be set out in the final plan. 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.

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

plan would also benefit from elaborating further on the policies and measures that will enable the achievement of the contribution and on other relevant sectorial measures.

- ✓ The UK has also not provided its **energy efficiency** contributions. The projections from the modelling scenario setting the pathway for achieving the UK's fifth carbon budget presented in the draft NECP would represent a low level of ambition. The final plan would benefit from more details on adequate policies and measures.
- ✓ The **energy security** dimension contains general objectives on reducing energy import dependency and increasing the flexibility of the national energy system in particular by means of deploying domestic energy sources. There is little information in terms of concrete objectives, targets, policies and measures in line with Annex I of the Governance Regulation⁷. An element to be considered in the final plan is the measures envisaged with a view to the possible development of nuclear generation capacity.
- ✓ The UK has not specified the **interconnection level** it aims for in for 2030. Other elements of the internal energy market dimension, such as smart meters, are addressed in detail, but a more consistent approach to defining concrete objectives and supporting policies and measures would be needed in the final plan. It is also not clear if a dedicated assessment of **energy poverty** as required by the Governance Regulation⁸ has been carried out. Additional information including energy poverty objectives would need to be clarified in the final plan.
- ✓ The draft NECP includes indications of the UK's overall priorities for **research, innovation and competitiveness**, but specific objectives and corresponding policies and measures for the 2030 timeframe would be necessary.
- ✓ The draft NECP includes investment expenditures in different sectors and areas to implement the Clean Growth Strategy totalling well below 0.5 % of GDP annually, but not an assessment of the **investment needs**, market risks and barriers. Including these in the final plan would allow full advantage to be taken of the role NECPs can play in providing clarity to investors and attracting additional investment in the clean energy transition.
- ✓ The UK aims to maintain the existing **regional cooperation** in the North Seas Energy Cooperation. Given the UK's decision to leave the EU, ensuring continued regional cooperation with Ireland on emergency preparedness and response for electricity and security of supply for gas and oil will be important.
- ✓ The interactions with **air quality** are acknowledged in some instances. However, the final plan would benefit from strengthening this analysis with quantitative information. The planned increase in biomass use makes air impacts particularly relevant to consider.
- ✓ In the context of **just transition aspects**, impacts on consumers, shifts in sectors/industries, distributional effects, revenue recycling and links to current energy poverty policies are additional important factors to be taken into consideration for the final plan. Specific attention should be paid to coal and carbon-intensive regions and how they will be impacted by the energy transition.

⁷ Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action.

⁸ Pursuant to article 3.3.(d) of Regulation 2018/1999.

- ✓ A 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.
- ✓ **Good practice** worth mentioning is the Climate Change Act, which contains legally binding long-term greenhouse gas emission reduction targets and five-year carbon budgets, as well as specific targets for ultra-low emission vehicles in the public sector. The government’s work with the regulator to manage the transition to a smarter, more flexible energy system could be considered another example of good practice.

Preparation and submission of the draft plan

The United Kingdom of Great Britain and Northern Ireland (UK) notified its draft National Energy and Climate Plan (NECP) to the European Commission on 20 December 2018. The draft NECP includes the disclaimer stating that “on the 29 March 2019, the UK will leave the European Union”. Regarding greenhouse gas emission reduction, renewable energy and energy efficiency targets, the draft NECP states that “the UK’s long-term relationship with the EU is a matter for the future economic partnership negotiations” while adding that the UK’s climate ambitions and standards set out in domestic law will be maintained after the UK leaves the EU. The draft plan was developed by the UK’s Department for Business, Energy and Industrial Strategy, and it is mainly a summary of existing documents, such as the Clean Growth Strategy of 2017.

The draft NECP explains that even though the UK government retains control over a number of energy policy and emission reduction areas, energy policy is mainly devolved to Northern Ireland and partly to Wales and Scotland, and climate policy is devolved to Wales, Scotland and Northern Ireland. Some objectives and targets and policies and measures have only been included in the draft plan with respect to the devolved administrations and not the UK as a whole.

The draft NECP refers to the consultation process in the context of developing energy and climate policy in general and the EU-wide NECP preparation process. It does not provide details on how national and EU entities and the public were consulted in the draft NECP preparation process, and what the outcome of a potential consultation was.





Regarding regional cooperation, the draft NECP mentions that the UK made use of the North Seas Energy Cooperation (NSEC) to exchange information and experiences regarding specific aspects, such as offshore wind development.

Overview of the key objectives, targets and contributions

The following table presents an overview of the UK’s objectives, targets and contributions under the Governance Regulation⁹:

National targets and contributions	Latest available data	2020	2030	Assessment of 2030 ambition level
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⁹ Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action.

	Binding target for greenhouse gas emissions compared to 2005 under the Effort Sharing Regulation (ESR) (%)	-21	-16	-37	As in ESR. Total GHG -57 % by 2028-32 to 1990
	National target/contribution for renewable energy: Share of energy from renewable sources in gross final consumption of energy (%)	10.2	15	Not provided	27 % (result of RES formula)
	National contribution for energy efficiency: Primary energy consumption (Mtoe) Final energy consumption (Mtoe)	177.0 133.3	177.6 129.2	Not provided	Very low Very low
	Level of electricity interconnectivity (%)	6	8	Not provided	N/A

Sources: EU Commission, ENERGY STATISTICS, Energy datasheets: EU28 countries; SWD(2018)453; European Semester by country¹⁰; COM/2017/718; UK's 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 UK introduced a Climate Change Act in 2008 with a legally binding target of at least 80 % greenhouse gas emission reduction by 2050 and carbon budgets for five-year periods to be set twelve years in advance. The fifth carbon budget for the period 2028-2032 corresponds to a 57 % average emission reduction, compared to 1990.

The draft NECP does not mention the UK's **non-ETS emission target** under the Effort Sharing¹¹ and LULUCF¹² Regulations (-37 % by 2030 compared to 2005). According to European Commission estimates based on the impact assessment for the fifth carbon budget, it is likely that if the UK were to achieve its domestic target, it would overachieve the non-ETS target. This is however not the case in the projections with existing measures and with additional measures included in the draft NECP, where projected emissions exceed the carbon budgets for 2023 to 2032, but are not split into EU ETS and effort sharing sectors.

¹⁰ 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.

¹¹ Regulation (EU) 2018/842 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030.

¹² Regulation (EU) 2018/841 on greenhouse gas emissions and removals from land use, land use change and forestry.

It is not clear how the UK expects to reach the LULUCF no-debit commitment nor does it indicate the intended use of flexibilities between LULUCF and effort sharing sectors. With respect to the National Forestry Accounting Plan including the national Forest Reference Level, submitted by the UK as required by Article 8(3) of the LULUCF Regulation¹³, the Commission has put forward technical recommendations requesting action on a number of issues, detailed in SWD(2019)213.

The draft NECP lists 75 **policies and measures**¹⁴ for the decarbonisation dimension, some of which have expired. Existing and planned ESR measures are described, but the status is not clear for all listed measures, and in general their effects have not been quantified. Planned ESR measures cover energy supply, transport and buildings, while planned ESR measures for agriculture, LULUCF, waste management and product use / F-gases have not yet been provided. The draft plan refers to the Common Agricultural Policy as a tool for reducing greenhouse gas emissions from agriculture.

The draft plan also presents a broad range of **transport** policies and measures, including rail, public transport, low emission buses, and alternative fuels. Specific support is foreseen for **electromobility**, including on charging infrastructure, and sales of petrol and diesel cars and vans are planned to end in 2040. The Renewable Transport Fuels Obligation has been increased from the current level of 4.75 % to 9.75 % for 2020, rising to 12.4 % in 2032.

The draft plan refers to the **adaptation** dimension of the Climate Change Act and the Second National Adaptation Programme.

Renewable energy

The draft plan does not include **an overall UK contribution** to the EU 2030 renewable energy target or the other main elements of the national renewable objectives and trajectories. Apart from clarifying the UK's contribution, the final plan would also need to include an indicative trajectory that reaches all required reference points¹⁵. The UK's overall contribution expected by the formula contained in Annex II of the Governance Regulation¹⁶ is 27 %. In some instances the draft NECP provides information for Scotland and Wales, such as a target for the total share of renewable energy of 50 % by 2030 for Scotland and a target for the share of renewable energy in electricity of 70 % by 2030 for Wales.

When it comes to **sectoral targets**, the draft NECP includes a renewable energy **transport** fuel obligation of 9.75 % for 2020, rising to 12.4 % by 2032, with limited breakdown per technology or fuel. The draft NECP also specifies that for **electricity**, the share of renewable energy in 2030 should reach 50 % to meet the UK's carbon budget in a reference scenario with current policies up to 2020. Post-2020 the reference scenario includes assumptions that go beyond the current government's policy.

The draft NECP refers to a number of existing and planned **policies and measures** for renewable energy in electricity, heating and cooling and transport, but in most cases does not quantify their

¹³ Regulation (EU) 2018/841 on greenhouse gas emissions and removals from land use, land use change and forestry.

¹⁴ 41 policies and measures impact both ESR and ETS sectors, another 18 impact only ESR, and 16 impact LULUCF.

¹⁵ Pursuant to Article 4(a)(2) of Regulation 2018/1999.

¹⁶ Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action.

impact in terms of additional renewable energy capacity or increase in consumption. A positive element of the draft plan is the inclusion of an indicative budget allocated to certain policies and measures, such as the Contracts for Difference scheme, the Renewable Heat Incentive (RHI) and the Renewable Transport Fuels Obligation (RTFO). The draft plan also provides examples of investment pledges made in the Clean Growth Strategy, which contains the policies and measures across sectors to meet the UK's carbon budgets from 2023-2027 and 2028-2032.

In terms of concrete sectorial policies and measures, the draft NECP indicates that the development of renewable energy in the **electricity** sector will continue to be promoted through the Contracts for Difference auctions for less established technologies, to be carried out every two years. These are expected to deliver between 1 to 2 GW of offshore capacity throughout the 2020s. On the other hand, there is uncertainty with regards to how the UK will incentivise the deployment of small scale renewable energy, as the current feed-in tariff will be phased out in 2019. However the measures do not provide enough information to address accessibility of self-consumption to all final customers and financing for communities. Further information should also be provided on measures to achieve further simplification of administrative procedures and to facilitate the uptake of power purchase agreements.

The draft NECP refers to the RHI scheme as the main measure to promote renewable energy in the **heating and cooling** sector, without referring to the measures for fulfilling the obligations arising from articles 23 and 24 of the recast of the Renewable Energy Directive¹⁷. Specifically, the draft NECP does not yet include a clear description of how the UK intends to increase renewable energy in heating and cooling and in district heating and cooling by an indicative 1.3 and 1 percentage points as an annual average calculated for the periods of 2021 to 2025 and 2026 to 2030, respectively.

Regarding renewable energy in **transport**, the draft NECP mentions the RTFO, a measure to comply with both the Renewable Energy Directive¹⁸ and ILUC¹⁹, and which sets an obligation on fuel suppliers to increase the share of biofuels to 9.75 % for 2020, rising to 12.4 % by 2032. The final plan would need to be completed by the calculation of the transport target as requested in Articles 25-27 of the recast of the Renewable Energy Directive²⁰ in shares and absolute values. Other elements to include concern biofuels, bio-liquids as well as biomass fuels consumed in transport, where produced from food and feed crops, and the share of advanced biofuels and multipliers for electricity of road and rail.

Dimension energy efficiency

The draft NECP only provides projections for final energy consumption reduction in 2032, and no quantitative contributions have yet been presented. Nevertheless, the UK's projected levels of energy consumption could be derived from the modelling quoted in the draft plan and are estimated at 171.0 Mtoe for primary and 137.1 Mtoe for final energy consumption in 2030. These levels would mean only a small decrease in primary energy consumption and a small increase in

¹⁷ Directive 2018/2001/EU of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources.

¹⁸ Directive 2018/2001/EU on the promotion of the use of energy from renewable sources

¹⁹ Directive (EU) 2015/1513 of the European Parliament and of the Council of 9 September 2015 amending Directive 98/70/EC relating to the quality of petrol and diesel fuels and amending Directive 2009/28/EC on the promotion of the use of energy from renewable sources (Text with EEA relevance)

²⁰ Directive 2018/2001/EU on the promotion of the use of energy from renewable sources.

final energy consumption compared both to 2017 data and the 2020 targets. Although these are not official UK contributions for energy efficiency, they indicate that the level of efforts presented in the draft plan would represent a low level of ambition for primary and a very low level for final energy consumption, compared to what is expected at the EU level to collectively reach the Union's 2030 energy efficient targets.

The factors and conditions which could affect the primary and final energy consumption and hence the level of ambition are not yet described in detail in the draft plan. Absolute and relative change in final energy consumption, due to energy efficiency measures is reported, but it is unclear how the existing measures would lead to the reported changes, especially the increase in electricity and bioenergy.

With regards to **buildings**, the information provided for the renovation of the national stock of residential and non-residential buildings, both public and private, is limited and would need references to specific milestones, measurable progress indicators, estimation of expected energy savings and wider benefits.

The draft plan presents regulatory and non-regulatory **measures** addressing energy efficiency. The regulatory measures are those implementing the Energy Efficiency Directive²¹ and Energy Performance of Buildings Directive²², while the non-regulatory ones are grants or financial schemes. Awareness raising and information measures are also mentioned. The measures are presented in a descriptive way, and in most cases there is sufficient information to understand if they are existing or planned ones, but due to UK's carbon budget timeframes, it is unclear whether the reported measures will cover the entire obligation period of relevance.

The UK relies on alternative measures and an Energy Efficiency Obligation Scheme to fulfil its obligations under Article 7 of the Energy Efficiency Directive²³. Although cumulative savings have not been calculated, the UK expects to overachieve its 2014-2020 target by 33 %. Thus, it is expected that the 2021-2030 target will also be achieved. Nevertheless, there are not many details on the next obligation period, and many measures that could generate savings under Article 7²⁴ have not explicitly been mentioned in this context (i.e. transport measures, Climate Change Levy). The same applies to heating and cooling policies, which are briefly mentioned but their impacts are not disaggregated.

The draft NECP includes some relevant proposals and measures for homes, the public sector, business and industry, including with indicative targets for 2030 and 2050, but without detailed information on the key elements of the long-term renovation strategy.

The draft plan presents measures that contribute towards more efficient organisation of the mobility system and thus towards improved energy efficiency and emissions reductions (e.g. support for modal shift to sustainable transport modes, including grants to promote rail freight, public transport and active modes). Nonetheless, the final plan would benefit from covering also measures related to intelligent transport systems, digitalisation and automation.

²¹ 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.

²² Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency (Text with EEA relevance).

²³ Directive 2012/27/EU on energy efficiency.

²⁴ Directive 2012/27/EU on energy efficiency.

Without the information on planned measures, the necessary preliminary information as regards the Article 7²⁵ goal, more detailed information on the UK's long-term renovation strategy and on disaggregation on heating and cooling technologies, it is impossible to assess if the included measures are sufficient for meeting the assumed level of ambition.

Dimension energy security

The draft NECP contains very limited information in the energy security dimension. The description of the current situation does not include any information on relevant risks which the Governance Regulation²⁶ asks Member States to consider. A relevant consideration in this regard would be for example the retirement of part of existing nuclear capacity by 2025 and its eventual replacement, giving due attention to policies and measures related to ensuring long-term supply of nuclear fuel.

Regarding **objectives** on improving the resilience of regional and national energy systems in the context of constrained or interrupted supply, the draft NECP only makes a reference to the Security of Supply report. Concrete information from the report regarding objectives and corresponding measures would be needed to assess their sufficiency.

General **objectives** can be found on reducing energy import dependency and increasing the flexibility of the national energy system, in particular by means of deploying domestic energy sources, demand response and energy storage. The draft plan interprets domestic energy sources in a narrow sense as referring to hydrocarbon production on the UK Continental Shelf and shale gas. It makes references to a strategy to maximise economic recovery, supported by such measures as the abolishment of the Petroleum Revenue Tax, and working with industry to improve exploration rates, technology innovation and deployment. The final plan could be strengthened by a quantitative assessment of the impacts of the measures mentioned, as well as by a broader consideration of domestic energy sources. Furthermore, the reference to the cost-effective decommissioning of offshore installations would merit further consideration with respect to the expected impact on security of supply.

Even though the draft NECP deems regional cooperation in energy security as not applicable, the UK would be encouraged to consider these aspects in the final plan as important elements of meeting the objectives in this Energy Union dimension.

Dimension internal energy market

The draft NECP describes the UK's plans for additional **interconnector** development in general terms, namely by pointing to the potential for a further 9.5 GW of interconnections in the early to mid-2020s, beyond the projects which are currently under construction or seeking regulatory approval. This is expected to increase the UK's level of interconnection by 2030. Building on this, the final plan needs to provide the resulting interconnection level the UK is aiming for in

²⁵ Directive 2012/27/EU on energy efficiency.

²⁶ Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action.

2030, taking into consideration the quantitative indicators²⁷ of the urgency of the action needed, as set out in the Governance Regulation²⁸.

The draft NECP states that the UK is leading in **digitalisation** and smart energy services and refers to the Smart Systems and Flexibility Plan by the government and the regulator, which includes actions that are to be implemented by 2022 to enable the electricity system to work more flexibly. Since some of them have already been implemented, new actions have been identified in a progress update. The final NECP could draw on the takeaways from this work to set concrete objectives for the 2030 timeframe. It would also benefit from quantifying the effect of the actions mentioned on system flexibility, such as by specifying the capacity in MW which will become available to the market from flexibility sources.

When it comes to **consumer engagement** aspects, the draft NECP lists the objective of ensuring that every household and small business is offered a smart meter by the end of 2020. The UK's roll-out of smart meters is in line with best practice – the target is accompanied by a Cost Benefit Analysis for the roll-out, according to which the total net benefits will amount to approximately GBP 5.7 billion (around 0.3 % of current GDP), as well as a comprehensive consumer engagement strategy. The draft NECP also includes policies for consumer protection but since they have not been linked to concrete objectives or targets, assessing their sufficiency is challenging.

Energy poverty is a devolved issue in the UK, and the draft NECP includes a description of ongoing initiatives and objectives for England, Wales, Northern Ireland and Scotland, with various sets of timeframes. Policies and measures included focus on energy efficiency, but it is not clear if a dedicated assessment of energy poverty as required by the Governance Regulation²⁹ has been carried out. This would need to be clarified in the final plan.

Dimension research, innovation and competitiveness

The draft NECP refers to the UK's overall ambition to lead in the development, manufacture and use of low carbon technologies, systems and services, and lists a number of focus areas, such as smart systems, efficiency in construction and agriculture, industry, and financing. The approach presented, combining **research, innovation and competitiveness** issues, provides a good basis for setting more concrete and measurable objectives in the final plan.

When it comes to **investment**, in the Clean Growth Strategy (CGS) referenced in the draft NECP, the UK pledges to invest more than GBP 2.5 billion in research, development and demonstration of low carbon energy, transport, agriculture and waste. Nevertheless, since this concerns only the 2015-2021 period, forward-looking funding targets towards 2030 would be needed in the final plan.

As regards the **longer-term deployment objectives**, the CGS aims to ensure that the UK industry has the option of deploying Carbon Capture and Usage (CCUS) at scale during the 2030s, thanks to targeted public support of £ 315 million in the next four years until 2023.

²⁷ Price differential in the wholesale market exceeding an indicative threshold of EUR 2/MWh between Member States, regions or bidding zones; nominal transmission capacity of interconnectors below 30 % of peak load; nominal transmission capacity of interconnectors below 30 % of installed renewable generation.

²⁸ Regulation 2018/1999 on the Governance of the Energy Union and Climate Action.

²⁹ Pursuant to article 3.3.(d) of Regulation 2018/1999.

Furthermore, three pathways are identified to meet the target of reducing emissions by at least 80 % relative to 1990 levels by 2050, namely, electrification, hydrogen and negative emissions in the electricity sector. The UK does not specify its preferred option, nor what the objectives are to make sure it materialises.

When it comes to **competitiveness**, investment in economic infrastructure is emphasised, where public investment will have doubled in a decade by 2022-2023, but this does not translate into energy-related competitiveness policies and measures, for instance in the low-carbon technologies sector or competitiveness of energy-intensive industries. The NECP would benefit from presenting a more comprehensive analysis on where the low-carbon technologies sector, including for decarbonising 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.

As regards the **Strategic Energy Technology (SET) Plan**, the involvement of the UK in the temporary working groups for the implementation of the SET Plan objectives is mentioned, but no detailed information has yet been provided on how the objectives are being translated to the national context.

3. COHERENCE, POLICY INTERACTIONS AND INVESTMENTS

Due to the fact that the draft NECP draws only very marginal links between the domestic policies and the EU Energy Union dimensions and consists mostly of a compilation of already existing documents, it is difficult to assess coherence, compatibility and interlinkages between policies in the different dimensions. The draft NECP also does not explicitly refer to the energy efficiency first principle, and it is not clear whether and how it has been taken into account in relation to other Energy Union dimensions.

The draft NECP does not explicitly address the resilience of energy systems to climate change, although it is a key sector in the adaptation programme, which requires gas and electricity companies to report on climate risks and measures to mitigate them. There is no information on how climate change risks might affect energy supply (e.g., wildfires and storms destroying biomass resources and power networks, availability of hydro power). Information is also lacking on the benefits of adaptation for energy efficiency, such as in the thermal management of buildings. The draft plan also does not assess the impact of biomass use on the LULUCF sink and on the projections towards achievement of the no-debit commitment. The potential for sustainable supply of biomass and the impact of increased biomass use on biodiversity could also be further analysed.

It is worth highlighting that the plan includes information on interactions with **biodiversity** policies, providing details, e.g. on wetlands conservation measures or the promotion of good agrarian practices to ensure minimum soil cover, to maintain soil organic matter and to minimise erosion. Bioenergy already plays a major role in the energy mix, and it is expected to grow because of its use in transport, including aviation. The final plan would benefit from an analysis of the sustainable supply potential of biomass and its limits, as well as the impacts on biodiversity.

On the other hand, although interactions with **air quality** are acknowledged in some instances, the draft plan does not follow up these statements with any quantitative information and analysis about air impacts.

The final plan would also benefit from additional information on the interaction with the **circular economy**, emphasising its greenhouse gas emissions reduction potential. The draft plan lacks the reference to the constituent units' circular economy strategy, waste and resource programme or zero waste initiative.

In the context of **just transition aspects**, impacts on consumers, shifts in sectors/industries and skills impacts, distributional effects, revenue recycling and links to current energy poverty policies are additional important factors to be taken into consideration. On skills in particular, the draft plan reports a general commitment to build up skills for the energy transition, e.g. skills of contractors in the renewables sector. The strategy appears to be fragmented, referring to individual measures (F-gas regulation, Carbon Trust, Agricultural Action Plan) that provide training and education measures from general advice to in-depth consultancy and accreditation.

The draft NECP does not contain a thorough, quantitative assessment of the investment needs, market risks and barriers or other relevant information. It lists public investment expenditures to implement the Clean Growth Strategy, amounting to a volume of around GBP 15 billion over varying or unspecified time periods. The order of magnitude in terms of annual investments can be estimated as well below 0.5 % of GDP. A key funding source is the National Productivity Investment fund. There is a split in sectors and areas, however not systematically across the different Energy Union dimensions. The information is insufficient for concluding what the gaps are between planned budgets and actual investment needs.

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 had addressed that question as part of the 2019 European Semester process. Based on the 2019 Country Report for the United Kingdom, published on 27 February 2019³⁰, the European Commission's recommendation for a Council recommendation for the United Kingdom issued on 5 June 2019³¹, in the context of the European Semester, highlights in particular the need to invest in 'sustainable transport and low carbon and energy transition'. When preparing its overview of investment needs and related sources of finance for the final plan, the United Kingdom should take into account these recommendations and links to the European Semester.

When it comes to **energy subsidies**, the draft NECP only refers to the support schemes for renewable energy. Nevertheless, given that the Commission's Energy Prices and Costs Report³² identifies significant fossil fuel subsidies in the UK, it is important that the final plan includes a detailed description of all energy subsidies as well as the national policies, measures and corresponding timelines for phasing them out.

³⁰ Commission SWD(2019) 1027 final.

³¹ COM(2019) 528 final.

³² 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

The UK aims to maintain the ongoing cooperation under the North Seas Energy Cooperation (NSEC), notably for sharing good practices in the design of support schemes and jointly working on concepts for potential joint offshore wind projects. The draft NECP also makes a reference to the Commission's estimate that offshore wind from the North Seas can cover up to 12 % of the electric power consumption in the EU by 2030. In this context, continued cooperation in the NSEC formation will be crucial for the achievement of Energy Union objectives of bringing greater energy security, sustainability and competitiveness.

Furthermore, Ireland has flagged in its draft NECP ongoing regional cooperation initiatives with the UK regarding energy security and the internal energy market. In particular, these concern emergency preparedness and response for gas and electricity, as well as cooperation with Northern Ireland on oil security, in particular regarding the utilisation of import infrastructure on an island-wide basis in the event of a disruption. The future of the existing cooperation agreements is uncertain after the UK's withdrawal from the EU but suitable cooperation arrangements could be necessary to ensure coordination on key energy issues.

5. COMPLETENESS OF THE DRAFT PLAN

Information provided

The UK's draft NECP does not follow the binding template for national energy and climate plans³³. The UK does not specify what its targets are related to the Energy Union dimensions, and since the fifth carbon budget covers the years 2028-2032, the timelines presented do not align with the EU's 2030 framework. Policies and measures included mostly fall under the decarbonisation dimension.

The **decarbonisation dimension** of the draft NECP is partially complete. On **greenhouse gases**, the draft NECP does not mention the binding national target for 2030 under the Effort Sharing Regulation (ESR)³⁴, and does not include an estimation of the emission trajectory with binding annual limits for the period 2021-2030. The draft plan does not apply the accounting rules as set out in the LULUCF Regulation³⁵, and information is missing about the intended use of flexibilities between the LULUCF and ESR sectors. The draft NECP does not state climate adaptation objectives, although available from the UK's Second National Adaptation Programme. An extensive table with policies and measures for delivering on the UK's domestic climate targets has been provided.

The draft plan is missing key elements regarding **renewable energy**, notably, the UK's overall contribution to the EU 2030 target and sectoral renewable energy trajectories including planned and repowered capacities. The draft plan does not include estimated trajectories on bioenergy demand disaggregated between heat, electricity and transport, and on biomass supply, by

³³ Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action.

³⁴ Regulation (EU) 2018/842 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030.

³⁵ Regulation (EU) 2018/841 on greenhouse gas emissions and removals from land use, land use change and forestry.

feedstocks and origin. The policies and measures included are not quantified in terms on their impact on additional renewable energy capacity or increase in renewable energy consumption. The scarcity of information provided hampers establishing a consolidated overview of the UK's strategy towards the EU's 2030 renewable energy framework. More information on self-consumption, renewable energy communities, simplification of administrative procedures and to facilitate the uptake of power purchase agreements could be provided as part of the final plan.

The draft UK NECP contains some projections for final energy consumption reduction in 2032, but UK has not set **energy efficiency** contributions for 2030, and it is unclear how the EU's 2030 targets were taken into consideration. The draft plan also does not include an indicative trajectory and does not set, among others, a cumulative amount of energy savings to be achieved in the 2021-2030 period. A number of policies and measures are present, but without any indication of how they contribute towards the energy efficiency objectives. The key elements of the long-term renovation strategy are missing. Concrete figures on cost-optimal minimum energy performance requirements have also not been provided.

Regarding the **energy security** dimension, the draft NECP does not set out concrete national objectives, and the policies and measures included refer to the objectives and targets of the internal energy market dimension. Drawing a clearer distinction between objectives and targets on the one hand and policies and measures on the other hand would greatly benefit the clarity of the final plan. A quantitative assessment of the future electricity generation adequacy, including the role of demand response and storage, would provide a clearer picture of the UK's energy security situation. Information on the lifetime of existing and foreseen nuclear reactors and on policies and measures to ensure long-term supply of nuclear fuel is also relevant in this regard.

The draft NECP does not indicate the interconnection level the UK is aiming for in 2030. A full assessment of the **internal market dimension** would also necessitate more detailed information on core quantitative parameters on the functioning of the national wholesale and retail gas and electricity markets, on which measurable future targets and corresponding measures could be based. Additional information on the aspects listed under market integration, in particular on objectives for system flexibility and energy poverty, would be needed.

The draft NECP includes welcome information on research domains that could potentially receive attention and sets out the overall objective to accelerate the commercialisation of innovative clean energy technologies and processes. Concrete and measurable objectives to be achieved by 2030, as well as deployment objectives for the post-2030 period would be needed to strengthen the **research, innovation and competitiveness** dimension in the final plan. Objectives related to competitiveness are missing. An overview of current cooperation activities with other Member States and third countries in this area is included.

Robustness of the UK's draft National Energy and Climate Plan

Elements of the **analytical basis** are present in the draft plan. Details of the projection with existing measures (WEM), up to 2035, are reported in the annexes of the UK Energy and Emissions Projections 2017. Some elements of an impact assessment of planned policies and measures are included. The draft plan mainly relies on national data sources. Eurostat data are referred to for electricity and natural gas prices.

The **WEM projection** addresses the dimensions of decarbonisation, energy efficiency and energy security. Key greenhouse gas and energy related variables of the WEM projection are

reported, but additional information would be desirable on the following variables: (i) the differentiation of greenhouse gas (GHG) emissions per Intergovernmental Panel on Climate Change (IPCC) sector, (ii) the differentiation of sectoral GHG emissions per IPCC gas, (iii) the differentiation of sectoral GHG emissions between those covered by the EU Emissions Trading System (ETS) and those falling under the Effort Sharing Regulation³⁶, (iv) GHG emissions from international aviation, (v) GHG emissions and sinks from LULUCF, and (vi) non-GHG air pollutants, (vii) imports and exports of electricity, (viii) time series for investment needs, and (ix) gross final energy consumption.

Data sources and models as well as fuel and emissions prices and technology costs have been documented. The **transparency** of the projections could be further improved in the final plan by adding gross domestic product (GDP) projections, number of households, and transport activities.

Regarding the **impact assessment**, more complete data on projections with additional measures (WAM), complementing the currently reported in GHG emissions, would allow for a more detailed review. Similarly, additional information on which policies and measures are included in the respective WEM and WAM scenarios would increase transparency. 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.

Key parameters (primary and final energy consumption) are in line with EUROSTAT figures for the base year 2015. The final plan could be improved by providing base year figures for GDP, population and renewable energy shares. It follows its own assumptions for international fuel and ETS carbon prices.

³⁶ Regulation (EU) 2018/842 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030.