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Assessment of the final national energy and climate plan of the Netherlands

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1. SUMMARY

The final integrated national energy and climate plan (NECP)¹ sets a 2030 target for non-ETS **greenhouse gas (GHG) emission** reductions of 36% compared to 2005, as set in the Effort Sharing Regulation (ESR). The plan also includes a national total GHG emission target of -49% by 2030 compared to 1990, which contributes to the overall EU reduction target of 40%. The plan mainly describes existing policies and measures without incorporating the full set of recently agreed policies and measures. Based on this, the binding target for 2030 under the ESR could be missed. The national long-term GHG objective is a 95% reduction in GHG emissions by 2050 compared to 1990, as set out in the national long-term strategy and in line with the National Climate Law.

The Climate Agreement assessment needs to be completed, incorporating all recent measures and providing a final assessment of environmental, social and economic impacts. This will likely be incorporated into a future National Energy Outlook. Based on such an overarching view, it would be possible to set an updated overarching investment agenda for the climate and energy transition. The plan mentions the commitment to generate no debits in the **land use, land use change and forestry (LULUCF)** (i.e. accounted emissions should not exceed accounted removals). Several measures are considered to improve the performance of the LULUCF sectors, such as adjustments in the management of peat meadows, agricultural soils and forests, as well as planting new forests. However, both the ‘with existing measures’ (WEM) and ‘with additional measures’ (WAM) projections predict net emissions over 2021-2030.

The Netherlands’ **renewable energy contribution** to the EU 2030 target is 27% of gross final energy consumption in 2030. This is considered sufficiently ambitious compared to the result from the formula in Annex II to Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action (the ‘Governance Regulation’)². This contribution is likely to be largely met as the Netherlands estimates a renewable energy share of 30-32% by 2030.

On **energy efficiency**, the Netherlands’ contribution to the EU target is sufficiently ambitious³ and amounts to 46.6 Mtoe of primary energy consumption (which translates into 43.9 Mtoe of final energy consumption, deemed to be of modest ambition). The plan fails to explain how the Netherlands will apply the ‘energy efficiency first’ principle. However, it describes clear links between energy efficiency and the decarbonisation dimension. The plan provides information on buildings, such as indicative milestones for 2030, 2040 and 2050 in terms of CO₂ emission reductions, wider benefits and new measures planned for the coming years. The Netherlands submitted its long-term renovation strategy on 9 March 2020⁴.

In its plan, the Netherlands has set objectives for **energy security** policies that are primarily based on the principle of well-functioning energy markets. While the plan states that energy safeguards are not in danger in the future, consistency between objectives, related policies and

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

² The Commission’s recommendations with regard to the Member States’ renewable ambitions are based on a formula set out in this Regulation. The formula is based on objective criteria.

³ In accordance with the methodology described in SWD(2019) 212 final.

⁴ The Netherlands submitted its long-term renovation strategy on 9 March 2020 in accordance with Article 2a of Directive 2010/31/EU on the energy performance of buildings. However, this assessment is only based on the building-related elements provided in the final plan.

measures can only be partially assessed due to the lack of detailed descriptions of policies and measures. The plan also stresses the high importance of constructing energy-related infrastructure in a climate change-resistant way, with particular focus on flood resistance.

On the **internal energy market**, the plan emphasises the pursuit of electricity market frameworks that promote fair competition, and recalls that the retail gas and electricity market is already highly competitive. However, no targets have been provided for the roll-out of smart meters beyond 2020. The electricity **interconnection level** target is 37% by 2030.

National objectives and funding targets related to **research, innovation and competitiveness** are very well aligned and consistent with the climate and energy objectives, such as increasing renewables production, reducing CO₂ emissions or increasing renewable hydrogen generation. To support innovation, the Netherlands will continue its successful innovation funding schemes, such as Energy Topsector Energy, DEI (pilot projects and demonstration projects on energy and climate innovation) and HER (renewable energy). Extra funding of around EUR 95 million per year has been provided for 2020-2023 for energy-related innovation, with around EUR 240 million per year now available (up from EUR 145 million). However, it remains unclear what will happen after 2023.

The overall amount of private and public **investment needs** for 2019-2030 is estimated at EUR 75 billion (roughly 10% of current GDP). In terms of sources of finance, the plan fails to clarify exactly what has been budgeted and not budgeted, and how this relates to investment needs. The plan refers to the instruments contained in the Climate Agreement to mobilise these investments, which can vary from regulations on fiscal measures, carbon pricing through to the use of covenants.

The plan provides information on the interactions with the **air quality** and air emissions policy. This is based on the Climate Agreement and not on the policies and measures of the plan, which shows the impact of the NECP measures on reducing NO_x, SO₂ and PM₁₀ emissions. However, no information is provided on the methodology used.




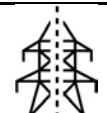
The final plan does not provide a list of **energy subsidies**, although it does describe indirect fossil fuel and renewable energy subsidies. While it indicates that there are no subsidies exclusively aimed at promoting fossil fuel consumption, significant subsidies have been identified in recent Commission analyses on energy subsidies. The final plan does not include actions undertaken and planned to phase out fossil fuel subsidies.

The final plan considers the **just and fair transition** aspects and provides information on the social, employment and skills impacts of a transition to a climate-neutral economy at a macro level. It includes references to more specific assessments of the impact on employment. Measures in the area of employment and skills are currently being prepared with the social partners or broader stakeholder involvement in relation to employment.

The Netherlands reports low numbers of consumers affected by **energy poverty** and therefore does not consider the need for a specific policy. It mentions the importance of consumer protection but does not propose specific or targeted measures to mitigate negative social effects.

There are **several examples of good practices** in the final plan, in particular the just transition measures, which are being prepared together with the social partners, and the phasing out of new petrol and diesel cars.

The following table presents an overview of the Netherlands' 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) (%)	-20%	-16%	-36%	As in ESR
	National target/contribution for renewable energy: Share of energy from renewable sources in gross final consumption of energy (%)	26%	14%	27%	Sufficiently ambitious (26% is the result of the RES formula)
	National contribution for energy efficiency: Primary energy consumption (Mtoe)	64.73	No specific target	46.6	Sufficient ambition
	Final energy consumption (Mtoe)	50.27		43.9	Modest ambition
	Level of electricity interconnectivity (%)	> 15%	> 15%	37%	N.A.

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

2. FINALISATION OF THE PLAN AND CONSIDERATION OF COMMISSION RECOMMENDATIONS

Preparation and submission of the final plan

The Netherlands **notified** the European Commission of its final national energy and climate plan on 18 December 2019.

A **public consultation** on the plan was launched in August 2019 and ran for 6 weeks. A summary of the results has not been submitted, but public feedback and the way in which this was incorporated into the climate plan and the national energy and climate plan was published online⁶. The comments have also been included in the final plan by highlighting the importance of the role of consumers and of raising awareness. There is no indication of a strategic environmental assessment being developed based on the national energy and climate plan under

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.

⁶ The report was published on www.internetconsultatie.nl.

Directive 2001/42/EC. However, the plan indicates that the figures in the final version of the plan are based on the 2019 Climate and Energy Report issued by the **Netherlands Environmental Assessment Agency**⁷, one of the key independent advisers to the government in the field of quality of life, environment, climate and energy.

Consideration of Commission recommendations

In June 2019, the Commission issued nine recommendations on the Netherlands' draft plan⁸. Annex II to this staff working document provides a detailed account on how the different elements of the recommendations have been reflected in the final plan. Overall, the final plan **partially addresses** most of the Commission recommendations. The following details the main changes.

On **renewables**, the Netherlands **partially addressed** the recommendation to strengthen its level of ambition on renewable energy for 2030 by providing detailed and quantified policies and measures. Trajectories and measures for the heating and cooling sector and transport sector were also required. In particular, the plan sets a clear target and applies an indicative trajectory on the pathway from 14% in 2020 to 27% in 2030. However, it does not provide a breakdown of the 2030 renewables contribution per sector along this trajectory.

The Netherlands **partially addressed** the recommendation on **energy efficiency** to increase the national contribution and to identify additional policies and measures that could deliver further energy savings by 2030. It significantly reviewed its national contribution in final energy consumption in view of the need to increase the level of effort to reach the EU's 2030 energy efficiency target. However, the national contribution in final energy consumption is deemed to be modest. New policies were identified. The Climate Agreement, which provides the basis for new policy measures, should help fill the gap identified in the first assessment.

On **energy security**, the Netherlands **partially addressed** the recommendation to specify the measures that support the energy security objectives on diversification and reduction of energy dependency, including measures to ensure flexibility and electricity generation adequacy in light of the ambitious renewables target. The final plan does not provide much more information than the draft plan. However, policies and measures have been described to tackle the dependency on low calorific gas coming from the gas fields in Groningen. The plan also describes special policies and measures to make the mining of smaller gas fields in the North Sea more attractive.

On **research, innovation and competitiveness**, the Netherlands **largely addressed** the recommendation to clarify the national objectives and funding targets. The plan does a very good job in identifying relevant areas where research and innovation efforts are needed within the timeframes of 2030 and 2050. It also defines the set-up of relevant programmes for their implementation. These efforts are considered credible in relation to achieving the set objectives, although budgetary commitments are not clearly described. On competitiveness, no specific objectives have been set.

⁷ <https://www.pbl.nl/publicaties/klimaat-en-energieverkenning-2019> and Parliamentary document 32 813 no. 400.

⁸ Commission Recommendation of 18 June 2019 on the draft integrated national energy and climate plan of the Netherlands covering the period 2021-2030, C/2019/4419.

The Netherlands **fully addressed** the recommendation to strengthen **regional cooperation**. In particular, in the context of the Pentalateral Energy Forum further development of the political declaration and greater regional cooperation on the national energy and climate plans will be taken up during the Dutch Presidency of the Benelux in 2020.

The recommendation on **investment needs and funding sources** has been **largely addressed**. In particular, the national energy and climate plan contains a fairly complete assessment of the investment needs to meet the overall national 2030 objectives and of the costs. The investment needs are divided into subsector or policy measures. Some unclarity remains as the final Climate Agreement has not been fully taken into account. Information on funding sources has been provided, but is not very detailed and lacks quantitative information.

The Netherlands **partially addressed** the recommendation to list actions undertaken and plans to **phase out energy subsidies**, in particular for fossil fuels. Although energy subsidies are described throughout the plan, they are not quantified. There are also no plans and actions to phase out indirect fossil fuel subsidies.

The Netherlands **partially addressed** the recommendation to complement the **analysis on air quality**. In particular, the final plan presents just a brief assessment of the impact of its measures on some key air pollutants. This is based on the Climate Agreement and not on the policies and measures of the plan. There is also a lack of transparency on how the assessment was done.

In addition, the Netherlands **partially addressed** the recommendation to better integrate **just and fair transition aspects**. More detailed assessments on skills are currently being prepared. In addition, measures to mitigate the impact on employment and skills are currently being prepared with the social partners or broader stakeholder involvement in relation to employment.

Links with the European Semester

In the context of the European Semester framework for the coordination of economic policies across the EU and of the country report 2019⁹, the Netherlands received one country-specific recommendation¹⁰ on climate and energy, calling on it to ‘focus investment-related economic policy on research and development in particular in the private sector, on renewable energy, energy efficiency and GHG emissions reduction strategies and on addressing transport bottlenecks’. In the 2020 country report¹¹ adopted on 20 February 2020, the Commission found that the Netherlands had achieved some progress on this recommendation. The report recognises that the Dutch final plan supports the recommendations, but remains abstract on how it will do it.

Due to the COVID-19 crisis, the European Semester country-specific recommendations for 2020 addressed Member States’ responses to the pandemic and made recommendations to foster economic recovery. In particular, they focused on the need to start mature public investment projects as soon as possible and promote private investment, including through relevant reforms, notably in the digital and green sectors. In this context, the Netherlands received a country-

⁹ The Annex D to the 2019 Country report also sets out priority investments for the 2021-2027 cohesion policy, substantially contributing to the clean energy transition.

¹⁰ Recommendation for a Council Recommendation on the 2019 National Reform Programme of the Netherlands and delivering a Council opinion on the 2019 Stability Programme of the Netherlands, COM(2019) 519 final.

¹¹ Commission staff working document, Country Report the Netherlands 2020, SWD/2020/518 final.

specific recommendation¹² stressing the importance of focusing investment on the green and digital transition, in particular on digital skills development, sustainable infrastructure and clean and efficient production and use of energy as well as mission-oriented research and innovation.

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

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

Decarbonisation

Greenhouse gas emissions and removals

The Netherlands' binding 2030 **non-ETS GHG emission target** is -36% compared to 2005. It aims to achieve this target domestically, as this is in line with the national total GHG emissions reduction target of -49% by 2030 compared to 1990. Annual binding national limits¹³ have not been provided, but a cumulative amount has been put forward: 891 Mt CO₂ equivalent. With existing policies, the final Dutch plan projects 31% emission reductions within effort sharing sectors, which would miss the 2030 target by 5 percentage points. Based on the 2019 National Energy Outlook, which is used for the projections in the plan, the Commission estimates that the non-ETS point target for 2030 will be missed unless additional measures are taken¹⁴. The Netherlands indicates that it does not intend to apply the flexibility from the **LULUCF** sector to the effort sharing sectors.

The Netherlands has an indicative target for emission reductions in the **transport** sector. The aim is 29.4-31.7 Mt emissions in 2030, compared to 35.6 Mt in 2018. This is to be achieved by additional measures that support **electromobility**, reduce the number of work-related kilometres and make logistics more sustainable. The underlying charging infrastructure is supported by the stimulation of sustainable energy carriers, electrification of the car fleet (financial incentives and a shift to 100% electric vehicles by 2030) and a specific agenda for electric charging stations. The plan points to a yearly reduction of 8 billion fewer kilometres of professional road transport by 2030 (corresponding to at least a 50% GHG reduction). Biofuels will help reduce GHG emissions to 33 Mt CO₂ equivalent in 2030. All new cars are to be emission-free by 2030. This is

¹² Recommendation for a Council Recommendation on the 2020 National Reform Programme of the Netherlands and delivering a Council opinion on the 2020 Stability Programme of the Netherlands, COM(2020) 519 final.

¹³ 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.

¹⁴ For the annual emission allocations calculation, the plan uses a 2005 base year of 122.8 Mt. This differs from the Commission's published effort sharing sector 2005 base year data of 127.8 Mt (SWD(2018)453 final, Table 4), which was also used in the Dutch 2019 Energy Outlook itself. With the NECP base year, the 2021-30 cumulative deficit with existing measures is 39 Mt CO₂ equivalent.

to be achieved primarily by tax incentives, which are to be gradually phased out over time. The Netherlands' 2050 objective is to achieve zero emissions through incentives for alternative fuels and the promotion of heavy goods road transport, inland shipping, maritime shipping and aviation. However, the plan does not provide more details on the specific measures for all modes and alternative fuels.

The Netherlands also has a quantitative target for further emission reductions in the **building sector**, namely 15.2-17.7 Mt CO₂ equivalent compared to 24.4 Mt in 2018, where a significant measure will consist of switching away from natural gas in a substantial part of the building stock.

In 2030, 50% fewer primary raw materials will be consumed in the Netherlands, and GHG emissions from production processes and the **waste sector** will be reduced to approximately 36 Mt of CO₂ equivalent.

Several measures are considered to improve the performance of the **LULUCF** sectors, including reducing oxidation in peat meadows, land and water management for carbon storage and sequestration, afforestation and the prevention of deforestation; the plan addresses synergies between mitigation and adaptation objectives and policies in forestry. Nevertheless, both the 'with existing measures' and 'with additional measures' projections predict net emissions over 2021-2030. On **agriculture**, the plan includes indicative emission results by 2030 of 20.2-22.8 Mt CO₂ equivalent (in addition, there would be 3.2-4.1 Mt emissions from land use, not counting towards achieving the 49% reduction). The plan mentions several measures such as manure management and reducing the number of pigs, an emission reduction target for greenhouse horticulture, and looking into consumer choices; it refers to focusing the common agricultural policy on making the agricultural sector more sustainable and having climate as a priority.

The plan does not include a full description of the **policies and measures** to be applied in order to reach its objectives or a full assessment. This is because some of the Climate Agreement policies were agreed too late to be incorporated into the assessment. 'With existing measures' and 'with additional measures' projections (both excluding additional measures from the Climate Agreement) indicate that the ESR target for 2030 will not be reached. A full assessment of the impact of the full policies as agreed by the date of writing would therefore still be required. It is expected that these will be assessed in future Dutch Climate and Energy Outlooks.

On **adaptation**, the plan recognises the country's vulnerability to climate change and the relevance of climate resilience in achieving mitigation objectives. It references the national adaptation plan and action plan, which focus on agriculture, nature and the built environment, complementing the Delta programme that focuses on water systems. The final plan only describes the goals of the Delta programme. It does a good job in describing the governance structure with interdepartmental cooperation and consultation with stakeholders.

The Netherlands notified the Commission of its long-term strategy on 18 December 2019. It aims to reduce GHG emissions by around 95% by 2050 compared to 1990. This objective, which is anchored in legislation, covers GHGs emitted in all sectors of the economy. The long-term strategy lacks, or addresses only partially, a significant number of the elements required by Article 15 of the Governance Regulation.

Renewable energy

The national contribution to the 2030 EU renewable energy target is specified in the plan, with the **renewable share** set at 27-32% of national gross final energy consumption in 2030. This is considered sufficiently ambitious as it is above the share of 26% by 2030 resulting from the formula in Annex II to the Governance Regulation. The plan simply applies the indicative trajectory on the pathway from 14% in 2020 to 27% in 2030. However, it does not provide a breakdown of the 2030 renewables contribution per sector along this trajectory. The assessment of the impact of the policies and measures that the Netherlands has put forward shows that several elements still need to be added to complete the plan.

In the **electricity** sector, the Netherlands aims to use renewable energy sources to cover 73% of its consumption by 2030. However, planned capacities are not provided for the electricity sector and are not split between new power and re-powering. The increase in renewable electricity is expected to be achieved through dedicated tenders for offshore wind (49 TWh), a competitive support scheme for primarily solar photovoltaic and onshore wind (35 TWh in total) and support for small-scale renewables (10 TWh). These policies and measures are considered sufficient in helping achieve the target, assuming that renewable electricity deployment will become cost-competitive once support schemes are expected to be phased out.

For **heating and cooling**, the plan refers to a renewables share penetration of 13% in 2030 and to several main actions under the Climate Agreement in several sectors. However, it does not provide information on the 1.3% annual average renewable share increase required between 2020 and 2030, the role of waste heat and the renewable energy share increase in district heating and cooling and related infrastructure. A detailed breakdown and quantified information on renewable energy technology contributions is largely missing. Except for a number of high-level objectives, the final plan does not provide details on the associated budget and intended impact of the policies and measures.

When setting the **transport** target¹⁵ in the final plan, the contribution of all eligible fuels amounts to 32%. New measures have been added and/or described in detail, such as a subsidies for demonstrating climate and energy innovations (DEI+) and support subsidies for renewables. The Commission considers these policies and measures sufficient in helping achieve the target. However, the Dutch government will rely on the cost-competitiveness of renewables beyond 2025 to achieve its targets, which will have to be strengthened by more data and analysis to become credible.

Energy efficiency

The Netherlands' **national contribution to energy efficiency** in 2030 amounts to 46.6 Mtoe of primary energy consumption, which translates into 43.9 Mtoe of final energy consumption.

The plan provides more information on **policies and measures** than the draft plan. The policies and measures cover all sectors. However, for most of the measures, including those relating to buildings, a clear timetable for their implementation is missing. The planned budget has been quantified, but funding sources have only been mentioned for certain programmes.

¹⁵ Articles 25-27 of 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.

While these policies and measures are considered credible in relation to the achievement of the target, a complete estimate of the impacts on energy consumption is absent. According to the data reported in the plan, the Netherlands will not be able to achieve the national contribution.

The Netherlands presents the **cumulative savings** to be achieved under Article 7 of the Energy Efficiency Directive¹⁶ with a cumulative amount of 22.09 Mtoe (925 PJ). This should be achieved by a large number of the listed policy measures. However, it is not clear which will be reported under Article 7. In general, the Commission considers these policies and measures credible in relation to the achievement of the target because of the number, their variety and complementarity. However, their actual impact on the cumulative energy savings target is uncertain without a complete estimation of the savings potential of each measure.

On energy efficiency in **buildings**, the Netherlands has provided more information, details and more energy efficiency policies and measures than the draft plan, which would go some way in terms of meeting the potential for energy efficiency savings in the sector. It intends to apply an indicative milestone of 15.2 Mt of CO₂ in 2030 and a 95% reduction in GHG emissions in the Dutch built environment in 2050 compared to 1990. Reference is made to new measures planned in the future, which have not been adopted yet. The measures and actions envisaged by the Netherlands are realistic, but lack detail and quantification, making it difficult to determine whether they would help meet the EU targets. The long-term renovation strategy was submitted on 9 March 2020.

Energy security

Maintaining a high level of security of supply is a priority in the ongoing transformation of the energy system, with the objective being a 73% **renewable electricity system**. When considering risks, the plan states the intention to expand wind generation and the importance of interconnections for imports.

The plan does not provide detailed quantitative objectives on the energy security dimension. The objective of the policies here are primarily based on the principle of well-functioning energy markets. One particular focus in the plan is on achieving the security of supply for low calorific natural **gas** produced from the Groningen gas field. Earthquakes in the Groningen area are an increasing concern, and the production of gas from this field is being phased out to protect the population. The plan presents national objectives with regard to readiness to cope with the constrained or interrupted supply of an energy source. It also describes policies and measures to address the security of supply issues stemming from phasing out the production of low calorific gas from the Groningen gas field. These are measures to lower demand for this gas and convert high calorific gas into low calorific gas to meet the remaining demand. In particular, the plan also presents policies and measures to make exploitation of smaller gas fields in the North Sea attractive. It does not explain the relationship between these measures and the overall decarbonisation objective. Consistency between objectives and related policies and measures can only be partially assessed due to the lack of a detailed description.

The plan only includes considerations on **cybersecurity** in the context of innovation objectives and fails to address it further.

¹⁶ 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.

There is no mention of potential new **nuclear power plants** in the final plan. Without new investments, the contribution of nuclear energy to the energy mix will end with the closure of the Borssele nuclear power plant in 2033. Given the importance of the Netherlands to the EU in the nuclear fuel cycle with its uranium enrichment and nuclear fuel fabrication facilities (and high-level technology), it is important for EU energy security to at least maintain this capacity. This is also to ensure the EU's continued technological leadership in the nuclear domain and to be competitive on the world market.

Since submitting its final plan, the Netherlands has also published its **hydrogen strategy** to scale up hydrogen produced by electrolysis to approximately 500 MW of installed capacity by 2025 and 3-4 GW of installed capacity by 2030. It is preparing a decision to construct a dedicated hydrogen pipeline network connecting industrial clusters.

Internal energy market

The plan states that the Netherlands has set an electricity **interconnectivity level** of 37%, which is above the 15% EU target for 2030. The country's key stakeholders actively participated in the North Sea renewables interconnections group. In this context, projects of common interest are being discussed with neighbouring countries.

The plan does not explicitly include an analysis of how rising electricity demand affects the level of electricity interconnectivity and the need for infrastructure. However, it does include an assessment of the general level of reliability of the electricity and gas network and related infrastructure development needs.

Given the electricity sector target of 73% renewable electricity in 2030, the final plan provides an overview of the development of the different sources of **flexibility** needed to integrate the growing share of renewable energy into the electricity system. It also promotes the participation of all resources able to provide flexibility in the balancing markets and better integration of renewables, and favours the active role and protection of prosumers and consumers.

The plan provides a sufficient overview of current **market conditions** for electricity and gas. It includes further policy objectives and measures related to the internal energy market (e.g. measures to ensure the non-discriminatory participation of new market participants and different flexibility sources in all energy markets). The Commission considers those measures are considered sufficient in helping achieve the objectives. Retail market aspects for electricity are well addressed in general. However, the plan does not provide information on the target for a further roll-out of smart grids beyond 2020, or on how the regulatory framework will allow the use of data from smart meters in the most optimal way. In addition, the plan highlights the relatively high annual switching rate for consumers (16% in 2017) as well as the high number of suppliers in the retail market (currently 59) and their licensing requirements for ensuring reasonability of tariffs, which serve as indicators for consumer choice.

On **energy poverty**, the Netherlands reports the number of households affected, but does not provide any specific measures beyond its existing and quite comprehensive anti-poverty policies. It indicates that it has no specific policy in place, as energy poverty is tackled by social policy in general. On the basis of the figures from the Energy Poverty Observatory and a 2018 study by the Netherlands Environmental Assessment Agency, the plan concludes that the Netherlands has low numbers of households affected by the various energy poverty indicators. Nevertheless, according to the study some 8.6% of households are considered at risk of being unable to pay their energy bills (2014-2015 figures).

Research, innovation and competitiveness

The plan identifies relevant areas where **research and innovation** efforts are being developed under the mission-driven Knowledge and Innovation Agenda. The Netherlands aims to spend 2.5% of GDP on research and development. However, the plan does not mention a specific target or specific research and innovation targets related to energy. The description of the national objectives and funding targets are too generic, making a realistic assessment impossible.

The Netherlands has a strong ambition to become a leader in the deployment of hydrogen and expresses it in the target to install electrolyser capacity of 3-4 GW in 2030. Hydrogen plays a key role in industry, buildings and the transport sector thanks to the possibility to build hydrogen plants coupled to large offshore wind parks and to use the extensive gas infrastructure. The Netherlands is active in many research projects and is currently investing in hydrogen research and in pilot & demonstration projects like the possible use of the Rotterdam harbour for hydrogen trade. It is also leading bilateral and EU projects on hydrogen development. The Dutch gas transmission system operator intends to convert and deploy its methane infrastructure for hydrogen transport, and some provinces in the Northern Netherlands are deploying a ‘hydrogen valley’ concept to provide an additional impetus.

Cooperation on the **strategic energy technology (SET) plan** is well described. The Netherlands mentions the SET Plan, and the mapping of its commitment is complete and consistent with its participation in the SET Plan. The plan provides an accurate link between the Dutch multiannual mission-driven innovation programmes and the SET Plan Implementation Working Groups, including ERA-NETs (funding for transnational research and innovation), mission innovation challenges and technology collaboration programmes when appropriated. In addition, it provides a precise allocation of the national funds under each implementation programme, clarifying how the SET Plan helps achieve the national energy and climate objectives.

On **competitiveness**, the emphasis is put on the country positioning itself as sixth in the Global Competitiveness Report¹⁷ and fourth in the Global Innovation Index¹⁸, making the Netherlands one of the most competitive economies and innovative countries. The low-carbon technologies sector lacks comparable definitions and data, and measurable objectives are not available. This represents a barrier in assessing the international position of the country in this sector. Future reports in the context of the Governance Regulation are expected to contribute more in this respect.

4. COHERENCE, POLICY INTERACTIONS AND INVESTMENTS

The policies presented in the national energy and climate plan are in line with the set objectives in general. Overall, the plan recognises that renewables and energy efficiency policies will have **interlinkages** with GHGs, but does not describe single policies and measures. Furthermore, it fails to explain how the Netherlands will apply the ‘energy efficiency first’ principle. The plan expands on the interactions with the air quality and air emissions policy, which shows the impact of its measures on emission reductions of NO_x, SO₂ and PM₁₀. The final plan provides synergies between the building sector and the decarbonisation dimension and renewable energy sources.

The plan contains a fairly complete assessment of the **investment needs** to meet the total national 2030 objectives (i.e. a 49% reduction compared to 1990). The investment needs are divided into

¹⁷ <https://worldcompetitiveness.imd.org/rankings/wcy>

¹⁸ <https://www.globalinnovationindex.org/home>

subsector or policy measures. The plan includes cumulative investment estimates over 2019-2030 following implementation of the draft Climate Agreement (and not the final one), ranging from EUR 56-75 billion, i.e. roughly 10% of current GDP. A large share of projected investment amounts is linked to renewable electricity generation and improved energy efficiency in key sectors (especially buildings), besides the overall objective of reducing net GHG emissions. These investments are in addition to the reference with existing policies and measures from the Climate Agreement. Uncertainties relate among others to the cost development of renewable energy technologies and grid investments. The full set of agreed measures has not yet been assessed, only those that were included in the draft Climate Agreement.

The plan includes a description of existing **energy subsidies**, in particular fossil fuels. It indicates that the Netherlands does not provide subsidies aimed exclusively at promoting the consumption of energy from fossil sources. However, the plan recognises the existence of subsidies in the form of tax breaks in line with the WTO definition. The timeline to phase out energy subsidies, in particular fossil fuel subsidies, is not mentioned in the final plan.

The NECP includes an overview of the expected **macro-economic impact** of the relevant policy measures, which is projected to remain modest (negative impact of about 0.5% on GDP and 0.4% on household income by 2030; marginal long-run impact on overall employment). These estimates are based on a separately published analysis by the Netherlands Bureau for Economic Policy Analysis (CPB). The latter includes a detailed discussion of the underlying methodology, which appears overall sound, while recognizing that long-run projections of this nature are inherently subject to significant modeling uncertainty.

On the **just and fair transition** aspects, the Netherlands has assessed the impact of policies and measures on skills, social aspects and employment to a limited extent. However, the plan refers to other documents containing more specific analysis, particularly in relation to employment. Specific measures to mitigate the impact on employment and skills are currently being prepared with broad stakeholder participation. The plan contains references to calculations by the Netherlands Bureau for Economic Policy Analysis (CPB) on the distributional impact of both the existing climate policy and the new Climate Agreement between 2018-2030, as well as an assessment of the limited energy poverty in the Netherlands. It states that, apart from fiscal measures related to energy policy, general measures are being undertaken to compensate for purchasing power developments within the population as a whole. It would be helpful to have more details, such as the structural changes needed for energy transition that can affect jobs and social coherence in particular sectors, e.g. the petrochemical industry.

The plan gives a rough quantitative estimate of the impact of some key air pollutants on the **air quality and air emissions policy**, but it is not transparent enough about how this assessment has been done and about the measures that are expected to provide clean air benefits compared to others. In an annex to the plan, the Netherlands recognises the absence of projections on air pollutant emissions. This raises concerns, especially considering the projected continued reliance on bioenergy and the related air pollutant emissions. The national air pollution control programme mentions links in a very general way, notably with transport policy. The programme does not mention the proposal to move away from natural gas for domestic heating. However, this would likely impact air pollution from this sector, possibly leading to increased biomass burning and increased use of electricity for heat pumps, with related air pollutant emissions.

The plan does not consider coherence of **adaptation** in the decarbonisation dimension with other dimensions of the Energy Union. There is no information on how climate change risks might affect the energy supply (e.g. wildfires and storms destroying biomass resources and power

networks). Information is also lacking on adaptation co-benefits and trade-offs for energy efficiency, such as in the thermal management of buildings. Only the adaptation goals of the Delta programme are described in the plan, not those of the complementary national adaptation strategy.

The plan fully integrates circularity and quantifies the GHG emissions reduction of the **circular economy**. It also includes specific targets on raw material reduction and circularity in industry. The coalition agreement states that the commitments from the Central Government of the Circular Economy and the Transition Agenda are implemented as part of the Climate Declaration. The aim of these commitments is to achieve a full circular economy in the Netherlands in 2050, with the intermediate goal of reducing primary material use by 50% in 2030. It also states an overall ambition of becoming circular within the industry sector: in 2050, raw materials, products and processes in industry should be net climate neutral and at least 80% circular. The plan acknowledges the pressures on **biodiversity**, as well as tensions between different uses of land. However, there is neither an assessment of interactions with policies, nor any specific measures described (e.g. on the sustainable supply of biomass).

Trajectories on **bioenergy demand and on biomass supply** by feedstocks and origin and an assessment of its sources of forest biomass and its impact on the LULUCF sink have not been estimated, but are in preparation. The plan acknowledges that domestic **biomass** and forestry raw materials will impact direct and indirect land use change and sink capacity both nationally and globally. Decreases in the carbon sink are due to the increased gradual ageing of the Dutch forest.

The Netherlands does not explain how it will apply the **‘energy efficiency first’ principle** in the plan. Potential application of the principle is not reflected in the energy security or internal energy market dimensions. However, the plan establishes a link between energy efficiency and the decarbonisation dimension, with the impact of energy savings on GHG emissions taken into account. Energy efficiency measures are considered as part of the overall cost-effective policy for GHG emissions reduction, especially in industry and the built environment. The ‘energy efficiency first’ principle in the budget and investment needs is not considered.

The final version of the plan fully complies with **data transparency** requirements and with the use of European statistics.

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

The Netherlands needs to swiftly proceed with implementing its final integrated national energy and climate plan notified to the Commission on 18 December 2019. This section provides some guidance to the Netherlands for the implementation phase.

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

Guidance on the implementation of the national energy and climate plan

The Netherlands' target for 2030 in the effort sharing sectors is -36% in line with the Effort Sharing Regulation. According to national projections based on existing measures, the Netherlands will achieve -31% reductions compared to 2005, somewhat underachieving on the target unless additional measures are taken.

The Dutch contribution to the EU 2030 renewables target is sufficiently ambitious when compared to the share resulting from the formula in Annex II of the Governance Regulation. However, the contribution to the 2030 energy efficiency target is assessed to be sufficient in terms of primary energy consumption but modest for final energy consumption. The plan therefore still leaves scope to further develop and strengthen policies and measures on both renewables and energy efficiency in order to contribute more to the EU climate and energy targets and strengthen the green transition.

On **renewables**, the Netherlands is committed to an overall renewable energy target of 27% by 2030, and is expected to exceed the share at national level. However, it still lags behind its 2020 target of 14%, and will require significant investments in renewable energy to ensure that it remains above its baseline and achieves its trajectory for 2023. In addition to the policy measures already described in the plan, the Netherlands would also benefit from more specific sectoral targets and actions. This would also assist in the future assessment and monitoring of the contributing measures and actions in order to better ensure the overall result. The regional energy strategies that will be developed by local and regional authorities will be an important tool in ensuring that the Netherlands achieves its ambitions for onshore renewable power generation and the use of renewables in the built environment, including through district heating systems. A careful analysis and evaluation of these regional energy strategies, including an assessment of the regulatory, structural and administrative system, would help remove any barriers and burdensome procedures, streamline licensing, and ensure timely investments in the necessary infrastructure. The development of renewable hydrogen, including the associated renewable power generation required, is another important area that can contribute to the Dutch ambition of raising its renewable energy share.

On **energy efficiency**, the Netherlands would benefit from adopting and implementing additional policies and measures that would deliver additional final energy savings by 2030. To ensure it achieves its ambitions, a sufficient set of policies and measures needs to be proposed. A quantitative assessment of the impact of planned policy measures under Article 7 of the Energy Efficiency Directive, including all elements required by Annex III to the Governance Regulation, would be beneficial. In addition, the policy framework would benefit from full implementation of the 'energy efficiency first' principle in related policy areas, especially in terms of increasing the share of renewable energy, security of supply and internal energy market.

Improving energy efficiency in buildings has much potential for speeding up energy savings and contributing to the recovery of the economy after the COVID-19 pandemic. Building on the momentum of the '**Renovation wave**' initiative¹⁹, there is scope for the Netherlands to intensify efforts to improve the energy performance of the existing building stock with specific measures,

¹⁹ Communication 'A Renovation Wave for Europe – greening our buildings, creating jobs, improving lives', COM(2020)662 and SWD(2020)550.

targets and actions, while giving due attention to energy poverty. Further support for the renovation of public and private buildings could be provided through increased public funding and by leveraging EU and national budgets with private money, combining grants, lending, guarantees and loan subsidies. The Netherlands is encouraged to support the substantial energy-saving potential of the existing building stock by implementing the long-term renovation strategy in accordance with Article 2a of the Energy Performance of Buildings Directive²⁰.

As regards **energy poverty**, the Netherlands is encouraged to consult the Commission Recommendation of 14 October 2020 on energy poverty and its accompanying staff working document providing guidance on the definition and quantification of the number of households in energy poverty and on the EU-level support available to Member States' energy poverty policies and measures. Energy poverty could be, among other measures, addressed through specific support to socially innovative solutions and social enterprises that work on addressing this challenge (e.g. energy-awareness campaigns, retraining unemployed as energy advisors, supporting green installations by co-operatives, buying energy-saving appliances for social enterprises to rent out). It will be important to ensure the upskilling of the workforce in the construction sector.

Transport fleet renewal is an important policy lever in the Netherlands that could help stimulate demand for safe and clean mobile assets with reduced CO₂ and pollutant emissions. This should contribute to more **sustainable and better multimodal transport** and help support changes in mobility needs and transport patterns. Green alternatives are gradually becoming available for buses, trains, cars, trucks, inland water way vessels, ships, and aircraft, but specific incentives need to be put in place to encourage a growing green fleet share.

On **energy security**, given the importance of the Netherlands to the EU in the nuclear fuel cycle with its uranium enrichment and nuclear fuel fabrication facilities (and high-level technology), it is important to maintain this capacity in the country. This is also to ensure the EU's continued technological leadership in the nuclear domain and to be competitive on the world market.

The Netherlands would benefit from defining clear indicators to track the achievement of milestones towards its objectives on **research and innovation and competitiveness**. Over time, the gathering of granular research, innovation and competitiveness data will be useful to strengthen this process. The Netherlands would need to ensure the link with the undertaken SET Plan activities. It would also benefit from strengthening the link between the competitiveness objective and the policies and measures to be put in place for the different sectors by 2030.

On **investment needs**, an analysis by the CPB following the recent Climate Agreement estimates that public expenditure on climate and energy policy will increase by EUR 3.9 billion (around 0.5% of current GDP) by 2030, whereas the tax burden will increase by around EUR 4.5 billion (also around 0.5% of GDP). Investments in renewable energy and networks are expected to increase substantially over the coming decade under agreed policies. Investments in the energy sector as a whole are projected to rise from around EUR 11.6 billion in 2017 to EUR 15.6 billion in 2030. Of these, investments in conventional energy sources will stabilise at around EUR 2 billion a year. Investments in energy efficiency rose from EUR 2.5 billion in 2010 to EUR 4.1

²⁰ The Netherlands submitted its long-term renovation strategy in accordance with Article 2a of Directive 2010/31/EU on the energy performance of buildings on 09.03.2020.

billion in 2017, and will rise further to EUR 5 billion in 2030. Investments in renewable energy and networks are expected to increase from EUR 5.5 billion in 2017 to EUR 9.5 billion by 2030. The most recent measures in the Climate Agreement will lead to an additional EUR 1931 billion of investments between 2019 and 2030. Further substantial investments are therefore needed in energy infrastructure, which were not clearly specified in the Climate Agreement. In general, a complete overview of the investments needed for the long-term climate transformation is still lacking, but the government is working on a climate and energy investment agenda.

On **regional cooperation**, the Netherlands has been fairly pro-active, notably as part of the Pentalateral Energy Forum and the North Seas Energy Cooperation. It is invited to continue ongoing efforts with a view to intensifying exchanges and initiatives that will facilitate the implementation of its national energy and climate plan, in particular as regards relevant cross-border issues²¹.

The Netherlands is invited to extend and update reporting on **energy subsidies** and intensify action to phase them out, in particular for fossil fuels. The green transition in the Netherlands would receive a further boost from rapid phase-out of the fossil fuel subsidies identified in the national energy and climate plan and recent Commission analyses. This would involve the development and implementation of concrete plans with associated timelines, coupled with measures to mitigate the risk of household energy poverty.

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

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

Link to the recovery from the COVID-19 crisis

The vast majority of Member States’ final national energy and climate plans were drafted before the COVID-19 crisis, and the present Staff Working Document assesses the Netherlands’ plan in

²¹ In this context, the Commission will help address related issues in a strategic manner in its upcoming Strategy for Offshore Renewable Energy by identifying key actions in the area of maritime planning, upscaling technologies, and a new approach to infrastructure planning and offshore renewables capacity building.

that context. Nevertheless, the implementation of the Netherlands's final integrated national energy and climate plan will need to fully take into account the context of the post-COVID-19 recovery.

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

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

In addition, **the Commission strongly encourages Member States to include in their recovery and resilience plans investment and reforms in a number of 'flagship' areas**²². In particular, the 'Power up', 'Renovate' and 'Recharge and refuel' flagships are directly related to energy and climate action and to the contents of the final national energy and climate plans. Measures under the 'Reskill and upskill' flagship are also essential to foster the climate and energy transition in all Member States.

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

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

- Measures accelerating investments in energy-saving renovations and renewable energy in buildings;
- Measures developing smart energy infrastructure, including in offshore and on-shore wind, as well as smart grids;
- Measures financing innovative deep decarbonisation projects in industry, including hydrogen-related projects; measures promoting sustainable transport, including fleet renewal.

The above mentioned measures are indicative in nature and not meant to be exhaustive. They aim to orient reflections in the development of the national recovery and resilience plan. They do not

²² Cf. Annual Sustainable Growth Strategy 2021 (COM(2020) 575 final), pp. 9-12.

prejudge the position of the Commission on the actions to be proposed. This position will, inter alia, need to comply with the agreed legislative text on the Recovery and Resilience Facility.

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

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

Programme	Amount	Comments
Cohesion policy funds (ERDF, ESF+, Cohesion Fund)	1.3	In current prices. Includes funding for European territorial cooperation (ETC). Does not include amounts transferred to the Connecting Europe Facility.
Common agricultural policy – European Agricultural Fund for Rural Development, and direct payments from the European Agricultural Guarantee Fund.	5.6	In current prices.
Recovery and Resilience Facility	5.6	In 2018 prices. Indicative grants envelope, sum of 2021-2022 and estimated 2023 commitments. Based on the Commission’s summer 2020 GDP forecasts.
Just Transition Fund	0.6	In 2018 prices. Commitments both under the multi-annual financial framework (MFF) and Next Generation EU.
ETS auction revenue	0.5	Indicative: average of actual 2018 and 2019 auction revenues. The amounts in 2021 to 2027 will depend on the quantity and price of auctioned allowances.

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

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

Note to both tables

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

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

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

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

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

Recommendations		Assessment	
Decarbonisation – GHG	No recommendation	n.a.	-
Decarbonisation - renewables	The draft NECP does not set a clear national contribution to the Union's binding target of at least 32% renewable energy in 2030. The range between 27% and 35% is above the share of 26% in 2030 that results from the formula in Annex II of the Governance Regulation. The indicative trajectory to reach the Dutch contribution in 2030 reaching the reference points of 18% by 2022, 43% by 2025 and 65% by 2027 is not yet included in the draft NECP.	Partially addressed	The renewable energy contribution put forward in the plan is 27% of national gross final energy consumption in 2030. The plan simply applies the indicative trajectory on the pathway from 14% in 2020 to 27% in 2030. The plan does not provide a breakdown of the 2030 renewable contribution per sector along this trajectory. However, it does provide the 2030 renewable shares for electricity (73%), heating and cooling (13%) and transport (33%), but without an adequate breakdown of technologies or fuels. Offshore wind is the only technology where a detailed outline is provided. The final plan includes a description of how the baseline of 14% renewables by 2020 is intended to be met. It recognises that national renewables deployment will result in a renewables share of around 11.4%, and envisages an additional opening of renewables support schemes through the use of joint cooperation mechanisms, in particular statistical transfers, to ensure that the baseline for 2020 is met.
	Specifically for heating and cooling, the ambitions, trajectories and measures are still being developed. The expected share of renewable energy in 2021 and 2030 are not defined. The role of waste heat and cold remains unclear. There is no information on policies and measures leading to an increase of renewable energy in heating & cooling by an indicative 1.3 percentage points as an annual average calculated for the periods of 2021 to 2025 and 2026 to 2030, respectively.	Partially addressed	The Netherlands offers some additional information on how to increase the renewable energy share in heating and cooling, such as an increase in heat pumps, geothermal projects, deep geothermal and the use of biogas. In the built environment, the Dutch government aims to reduce natural gas dependence for 1.5 million households and 15% of commercial buildings, resulting in a renewable share in buildings of 20%. It proposes using an approach based on local neighbourhood-by-neighbourhood assessments. However, it does not discuss the specific contribution of different technologies and how to ensure the indicative trajectory.

	<p>On the transport target, the draft plan mentions that the use of electric vehicles will increase. The final plan would benefit from including the contributions of all eligible fuels, setting out the limits for conventional fuels produced from food and feed crops, addressing applicable multipliers and the sub-target for advanced biofuels in accordance with Articles 25-27 of Directive 2018/2001.</p>	<p>Largely addressed</p>	<p>Confirmation of the 32% reduction ambition. New measures have been added and/or described in detail (subsidies rule for demonstrating climate and energy innovations (DEI+) and support subsidies for renewables). The final plan reiterates the objective to sell only emission-free cars by 2030, and expects an associated contribution of 14.3 PJ of renewables-based electricity by 2030 (up from 6.6 PJ in 2018). Furthermore, conventional biofuels are expected to significantly increase in the period up to 2020 (from 23 PJ in 2019 to 37 PJ in 2020), and be capped up to 2030.</p>
	<p>As regards the policies and measures, only a general description of existing measures is provided. The document acknowledges that those measures are being evaluated and that depending on the conclusion of the National Climate Agreement, they are to be reformed or additional measures are to be provided in the final NECP. To demonstrate adequacy to reach the proposed level of ambition, and notably the first reference point of 2022, a detailed description of the policies and measures proposed is needed, including their timeframes and envisaged impact.</p>	<p>Partially addressed</p>	<p>The final plan provides an overview of the main policy and measures that have been put (or are considered to have been put) in place, the intended objective and target group, the responsible government ministry, status and timeline. For renewable energy, this includes the SDE++ scheme and specific measures to stimulate renewable energy in the built environment and the agricultural/horticultural sector. The final plan also includes a description of the additional sustainability criteria that will be developed for all biomass sources. Except for a number of high-level objectives, the final plan does not provide details on the associated budget and intended impact of the policies and measures. The plan discusses specific measures that are being put in place to support self-consumers as well as renewable energy communities (including the possibility of financial assistance for feasibility projects). However, it does not provide an assessment of the suggested impact of these policies. Other policy areas that are not covered in the plan are:</p> <ul style="list-style-type: none"> - one-stop shop - streamlining of administrative procedures - information and education - promotion of power purchase agreements. <p>The Netherlands is one of the few countries that has actually addressed all RED-I requirements to facilitate administrative procedures²³ and is</p>

²³ See COM(2017)57. The Netherlands already has in place: 1) one-stop shop; 2) online applications; 3) maximum time limit for procedures; 4) automatic permission after deadline; 5) facilitated procedures for small scale producers; 6) identification of geographical sites.

			one of the front-runners to support corporate renewable power purchase agreements. As such, it would be fairly easy to describe – and adapt where needed – existing policies to ensure that RED-II requirements are also met.
Energy efficiency	Review its final energy consumption contribution in view of the need to increase the level of efforts to reach the Union’s 2030 energy efficiency target.	Largely addressed	Final energy consumption is slightly lower and still assessed as modest in ambition. Primary energy consumption is unchanged but sufficient in ambition.
	List additional policies and measures to the ones already in place for the purposes of achieving the Netherlands’ 2030 energy efficiency targets. The expected impact in terms of energy savings, their implementation period and the targeted sectors are required in the final integrated national energy and climate plan.	Largely addressed	New policies were identified, in particular the Climate Agreement, which provides the basis for new policy measures that should help fill the gap identified in the first assessment. On energy efficiency in buildings, the final plan provided more information. Further details are specified in the long-term renovation strategy.
	Continue efforts regarding the energy saving obligation schemes beyond 2020, taking into account that the energy savings obligation in 2021-2030 is more ambitious than the current one.	Not addressed	On additional policies and measures for the purposes of achieving the Netherlands’ 2020 energy efficiency targets, Annex III provides a list of 50 energy efficiency policies and measures. However, complete estimates of the impacts on energy consumption are absent. The energy efficiency obligation scheme based on long-term agreements will be discontinued.
Energy security	Specify the measures supporting the energy security objectives on diversification and reduction of energy dependency, including measures ensuring flexibility and electricity generation adequacy in light of the ambitious renewables target.	Partially addressed	This recommendation was only partially addressed. In particular, the final plan does not provide much more information than the draft plan. However, it fully addresses the national objectives with regard to readiness to cope with the constrained or interrupted supply of an energy source. Policies and measures are described to tackle the dependency on low calorific gas coming from Groningen. In addition, the plan partially addresses the national objectives with regard to deployment of domestic energy sources. Special policies and measures are described to make the mining of smaller gas fields in the North Sea more attractive.
Internal energy market	No recommendation	n.a.	-

Research innovation and competitiveness	<p>Clarify the national objectives and funding targets research, innovation and competitiveness, specifically related to the Energy Union, to be achieved between 2021 and 2030, so that they are readily measurable and fit for purpose to support the implementation of targets in the other dimensions of the integrated national energy and climate plan. Underpin such objectives with specific and adequate policies and measures, including those to be developed in cooperation with other Member States, such as the Strategic Energy Technology Plan.</p>	<p>Largely addressed</p>	<p>The plan does a very good job in identifying relevant areas where research & innovation efforts are needed for the timeframes of 2030 and 2050. It also defines the set-up of relevant missions (programmes) for their implementation. These efforts are considered credible in relation to achieving the set objectives. However, it does not clearly describe how (in terms of budgetary commitments) these will be achieved. The plan includes yearly estimates of private investments in energy-related R&D (between EUR 100 million and EUR 150 million since 2012). This corresponds to the contribution of the private sector in subsidised R&D projects in several energy-related application areas (referred to as Top Energy Sectors, no breakdowns available) and specifically excludes innovation projects. On competitiveness, no specific objectives have been set. Cooperation with the SET Plan is very well defined.</p>
Investments and funding sources	<p>Provide a general overview of the investment needs to achieve the climate and energy objectives, and a general assessment of the sources of that investment, including appropriate financing at national and regional level.</p>	<p>Largely addressed</p>	<p>This sub-recommendation has been largely addressed. The plan contains a fairly complete assessment of the investment needs to meet the total overall national 2030 objectives as well as of the costs. The investment needs are divided into subsector or policy measures. Some unclarity remains as the final Climate Agreement has not been fully taken into account. The information provided indicates that the Dutch authorities have duly considered how to mobilise and fund the investments needed. However, the level of information provided is not very detailed and does not provide any quantitative information. The plan refers to the instruments contained in the Climate Agreement to mobilise these investments, which can vary from regulations on fiscal measures, carbon pricing through to the use of covenants. Where considered relevant (only in a relatively small subset of cases), this also includes the potential use of EU funding.</p> <p>The methodology is not described in detail within the plan itself, but this information is fully available in the underlying analysis by the CPB. The methodology appears sound in general, in particular because it also incorporates second-order effects where relevant (e.g. shifts in economic agents' behaviour as a result of new taxes or subsidies). Nevertheless, long-term macroeconomic projections of this nature are inherently subject to a significant degree of modelling uncertainty (which is fully recognised in the CPB analysis).</p>

Regional cooperation	Intensify the already excellent regional cooperation arrangements within the Pentalateral Energy Forum based on the political declaration of 4 March 2019 to extend this regional cooperation to specifically include the development and monitoring of the national energy and climate plans in particular as regards relevant issues for cross border cooperation.	Fully addressed	In the context of the Pentalateral Energy Forum, further development of the political declaration and greater regional cooperation on the national energy and climate plans will be taken up during the Dutch presidency of the Benelux in 2020.
Energy subsidies	List all energy subsidies.	Partially addressed	The final plan represents an upgrade of the draft plan on energy subsidies. Although energy subsidies are described throughout the plan, they are not quantified.
	List in particular fossil fuel subsidies.	Partially addressed	The final plan includes further information in the section on fossil fuel subsidies. It states that there are no subsidies exclusively aimed at promoting fossil fuel consumption, although it recognises that indirect subsidies (for fossil fuels) exist according to the WTO definition.
	List actions and plans to phase out energy subsidies, in particular for fossil fuels.	Not addressed	The final plan does not mention a timeline to phase out fossil fuel subsidies. The expectation is that subsidies for renewables will not be necessary beyond 2025.
Air quality	Complement the analysis of the interactions with air quality and air emissions policy with more quantitative information, at least including the required information about the projected air pollutants emissions under the planned policies and measures.	Partially addressed	The final plan presents a very short assessment of the impact of its measures on some key air pollutants based on the Climate Agreement and not on the policies and measures of the plan. However, it is not transparent enough about how this assessment has been done and about which measures are expected to provide clean air benefits compared to others. This raises concerns, especially considering the projected continued reliance on bioenergy and the related air pollutant emissions.
Just transition and energy poverty	Integrate just and fair transition aspects better, notably by providing more details on social, employment, skills, income distribution impacts of planned objectives, policies and measures, including for carbon-intensive and industrial regions.	Largely addressed	The employment, skills and distributional impacts of the transition are presented in general. However, an assessment of more specific impacts on skills is currently being prepared. Measures to mitigate the impact on skills and employment are currently being prepared together with the social partners or broader stakeholder engagement in relation to employment.
	Complete the approach to addressing energy poverty issues by including specific measurable targets, and details on the financial resources for the implementation of the described policies as required by the Regulation (EU) 2018/1999.	Not addressed	The plan makes no mention of additional measures but refers to existing anti-poverty policies that have been predominantly decentralised to municipalities. It refers to existing legislation and the role of national network operators and individual suppliers to cooperate in the event of bankruptcy (with the result that households may be cut off).