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CORRIGENDUM

This document corrects document SWD(2020) 912 final of 14.10.2020

- Modifications are introduced in Section 2 and Annex II regarding the recommendation on energy efficiency.
- Modifications are introduced in to the text reported on the capacity of EuroAsia Interconnector at p. 11.
- Modifications are introduced in Annex 1 of the report, regarding specifically values and annotations in tables 1 and 2.
- Minor editorial changes throughout the document.

The text shall read as follows :

COMMISSION STAFF WORKING DOCUMENT

Assessment of the final national energy and climate plan of Cyprus

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1. SUMMARY

Cyprus' final, integrated, national energy and climate plan (NECP)¹ sets a 2030 target to reduce domestic **greenhouse-gas (GHG) emissions** outside the EU Emissions Trading System (non-ETS) by 21% compared to 2005. This is in line with the national 2030 reduction target of 24% compared to 2005 legislated under the Effort Sharing Regulation (ESR)², when the available flexibilities are taken into account. With existing measures, a 14 percentage-point gap for reaching the 2030 target is projected. Long-term targets or objectives are not provided in the NECP. To close the remaining gap with planned measures, the NECP refers to the use of the flexibility mechanisms under the ESR, such as: (i) banking of surpluses over time; and (ii) the use of credits from land use, land-use change and forestry (LULUCF).

Cyprus' **renewable energy contribution** to the EU-level target for 2030 is **22.9%** of gross final energy consumption in 2030, with a potential of further increasing their share of renewable energy once the planned interconnection with Greece and Israel comes to fruition. This figure is slightly below the minimum share of 23% resulting from the formula in Annex II of Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action (the 'Governance Regulation')³.

For **energy efficiency**, the Cypriot contribution to the EU-level target for 2030 is of low ambition⁴ and amounts to 2.0 Mtoe of final energy consumption and 2.4 Mtoe of primary energy consumption in 2030. The 'energy efficiency first' principle has been applied in planned policies and measures. The final plan includes many aspects related to buildings. Cyprus submitted its long-term renovation strategy on 13 May 2020⁵.

In its plan, Cyprus sets objectives for **energy security** through liquefied-natural-gas (LNG) imports and electricity interconnections with Greece and Israel.

On the **internal energy market**, the plan sets objectives for: (i) competitive wholesale markets; (ii) the integration of renewable electricity production; and (iii) interconnectivity with the EU power market. Cyprus is currently not interconnected with any other country. Once the planned undersea cable is commissioned, its **interconnecting capacity** will be 2 000 MW, i.e. 200% of the current peak load.

National objectives and funding targets for **research, innovation and competitiveness** will triple annual spending in research and innovation (R&I) on energy and climate by 2023, while, currently, Cyprus spends less than EUR 5 million per year in this area. These investments will help increase energy efficiency, energy security, and renewable energy. They will also help to tackle climate change.

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 Regulation (EU) 2018/842.

³ 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.

⁴ In accordance with the methodology as illustrated in SWD(2019) 212 final.

⁵ Cyprus submitted its long-term renovation strategy pursuant to Article 2(a) of Directive 2010/31/EU on the Energy Performance of buildings on 13 May 2020. However, this assessment is only based on the building related elements provided in the final NECP.

The estimated overall amount of **investment** for the time period 2021-2030 is EUR 13.7 billion. The NECP provides detailed information on major investments that have been planned and scheduled in relevant sectors. It also provides estimates on the coverage of investment needs from public and private sources, giving also indication on the usage of EU funds (including also InvestEU and Just Transition Fund) to cover investment needs. It specifies that a large share of the financing will come from private sources and that these private investors will require Cyprus to create appropriate frameworks for the development and implementation of investment projects. However, it does not specify the source of funding for each measure.



The final NECP mentions a national action plan for the improvement of **air quality** in Cyprus, adopted in May 2018. The European Environment Agency remarks that Cypriots are exposed to high levels of ambient concentrations of PM, NO₂ and ozone. The NECP forecasts a significant reduction of emissions of these pollutants.

Cyprus included a list of **renewable energy subsidies** in its final plan. Information on fossil-fuel subsidies is not provided in the relevant section of the plan, although fossil-fuel subsidies have been identified in recent Commission analyses on energy subsidies. In the plan, Cyprus states that policies, timelines and measures planned to phase out energy subsidies – in particular for fossil fuels – were not applicable in Cyprus.



The final plan considers the **just and fair transition**, and also provides information on the social, employment, and skills impacts of the transition to a climate-neutral economy. For example, on **energy poverty**, Cyprus reports that 23 593 inhabitants (corresponding to 2.62% of the population) meet the criteria to benefit from specific measures.

There are **some examples of good practices** in the final NECP, in particular: (i) the very good analytical basis on the impact of the transition, including on employment; and (ii) the well researched parts on **energy poverty**.

The following table presents an overview of Cyprus' objectives, targets and contributions under the Governance Regulation⁶:

	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) (%)	0%	-5%	-24%	As in ESR
	National target/contribution for renewable energy: Share of energy from renewable sources in gross final	13.9%	13%	22.9%	Slightly below 23% (result of RES)

⁶ Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council.

	consumption of energy (%)				formula)
	National contribution for energy efficiency:				
	Primary energy consumption (Mtoe)	2.55	2.5	2.4	Low
	Final energy consumption (Mtoe)	1.86	1.9	2.0	Very low
	Level of electricity interconnectivity (%)	Non-interconnected	Non-interconnected	200%	N.A.

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

2. FINALISATION OF THE PLAN AND CONSIDERATION OF COMMISSION RECOMMENDATIONS

Cyprus **notified** its final national energy and climate plan (NECP) to the European Commission on 22 January 2020.

Cyprus organised a **public consultation** on the NECP, which ran in June 2019 with the national parliament, and in October 2019 with local communities. Cyprus has not submitted a summary of the public's view, nor has it submitted a summary of how those views were taken into account in the NECP. However, the main outcomes of these consultations are briefly described in the final NECP. There is no indication that a strategic environmental assessment was developed on the NECP under Directive 2001/42/EC.

Consideration of Commission recommendations

In June 2019, the Commission issued nine recommendations to Cyprus before it finalised its NECP⁷. Annex II to this staff working document offers a detailed account of how the different elements of the Commission recommendations were reflected in the final NECP. Overall, the final NECP **largely addresses** most of the Commission recommendations. The main changes introduced in the final plan are the following.

On **GHG emissions in non-ETS sectors**, Cyprus **largely addressed** the recommendation to clarify how it plans to reach its 2030 GHG emissions target for sectors outside the EU ETS. In particular, a with-additional-measures (WAM) scenario has been modelled, and policies and measures have been reported in the transport sector, supported by a broad scenario analysis of transport decarbonisation.

On **renewables**, Cyprus **partially addressed** the recommendation to significantly increase its level of ambition for 2030 to a renewable energy share of at least 23%. In particular, Cyprus provides two WAM scenarios giving the basis for the potential renewable energy contributions: one with the electricity interconnector (reaching a 30% share) and one without the electricity interconnector (reaching a 22.9% share).

On **energy efficiency**, Cyprus **largely addressed** the received recommendations. In particular, the final plan includes higher national contributions as expressed in both final and primary energy consumption. Projections and scenarios assessing the expected impacts of the new planned

⁷ Commission recommendation of 18 June 2019 on the draft integrated national energy and climate plan of Cyprus covering the period 2021-2030, C/2019/4413.

policies and the focus on the transport sector have also been reinforced. Cyprus submitted its long-term renovation strategy on 13 May 2020.

On **energy security**, Cyprus **largely addressed** the recommendation to set forward-looking objectives and targets for market integration. In particular, it set measures for the gas sector, given its plans to ensure the supply of natural gas to its territory in the near future. Cyprus also provided more information on future gas infrastructure, including LNG and pipeline facilities and the introduction of flexibility measures on the electricity market.

On the **internal energy market**, Cyprus **largely addressed** the recommendation to present the state of play on the organisation of its electricity markets clearly and consistently, with targets and objectives described in the internal market section. In particular, its NECP included a timeline for policies and measures.

On **research, innovation and competitiveness**, Cyprus **partially addressed** the recommendation to clarify its national objectives and funding targets. In particular, Cyprus plans to foster research and innovation (R&I) in climate and energy with annual spending of EUR 395 million. These efforts are considered credible in relation to the achievement of the target. However, the examples and indicators in the country's NECP are not always clear. On competitiveness, the NECP emphasises the energy sector and the creation of a robust, flexible, intelligent and technologically advanced industry.

Cyprus **partially addressed** the recommendation to strengthen **regional cooperation**, in particular as part of the 'Clean Energy for EU Islands' initiative. Cyprus added further information on existing cooperation with other Member States and about how ongoing projects of common interest contribute to the internal market and energy security objectives. However, it did not add further details on cooperation in R&I and competitiveness or the 'Clean Energy for EU Islands' initiative.

Cyprus **fully addressed** the recommendation on **investment needs**, investment mechanisms and the funding sources to leverage these investments. The NECP provides detailed information per the five dimensions of the Energy union, under two scenarios. It also provides estimates on the coverage of investment needs from public and private sources, giving also indication on the usage of EU funds (including also InvestEU and Just Transition Fund). What remains unclear is the methodology for calculating the investment needs.

Cyprus received a recommendation to provide a list of: (i) all energy subsidies; and (ii) actions undertaken – and future plans – to **phase out energy subsidies**, particularly for fossil fuels. This recommendation was **partially addressed**. The NECP does not contain information on fossil fuel energy subsidies; nor does it contain information on actions and plans to phase out these subsidies. The final NECP states that no subsidies for renewables were granted after 2015.

Cyprus **largely addressed** the recommendation to add to its **analysis on air quality**. In particular, the NECP includes a detailed, quantitative description of the impacts of the additional measures on air pollutants compared to existing measures.

Finally, Cyprus **largely addressed** the recommendation to better integrate **just and fair transition aspects**. In particular, the final NECP provides a very good analysis of the impact of the twin transition on employment as well as on solid elements on **energy poverty**, although information regarding accessibility of vulnerable groups is not provided in detail. Furthermore, Cyprus did not address the skills needs arising from the transition with reference to upskilling and reskilling.

Link 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 2019⁸, Cyprus received one country-specific recommendation⁹ on climate and energy, in particular to focus investment-related economic policy on sustainable transport, environment, in particular waste and water management, energy efficiency and renewable energy, digitalisation, including digital skills, and research and innovation. In the 2020 country report¹⁰ adopted on 20 February 2020, the Commission found that Cyprus had achieved limited progress on this recommendation.

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, Cyprus received a country-specific recommendation¹¹ stressing the importance of focusing investment on 'the green and digital transition, in particular on clean and efficient production and use of energy, waste and water management, sustainable transport, digitalisation, 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. Cyprus' 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 NECP states Cyprus' **non-ETS target for reductions of GHG emissions** as defined in the ESR, i.e. a 24% reduction by 2030 relative to 2005. A national target reduction of 21% in non-ETS GHG emissions compared to 2005 is the result of modelling the impacts of additional measures contained in the plan¹². To cover the remaining gap, the NECP refers to the use of the ESR's flexibility mechanisms. In particular, it refers to the banking of surpluses early in the

⁸ 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.

⁹ Recommendation for a Council recommendation on the 2019 National Reform Programme of Cyprus and delivering a Council opinion on the 2019 Stability Programme of Cyprus, COM(2019) 513 final.

¹⁰ Commission staff working document, Country Report Cyprus 2020, SWD/2020/512 final.

¹¹ Recommendation for a Council recommendation on the 2020 National Reform Programme of Cyprus and delivering a Council opinion on the 2020 Stability Programme of Cyprus, COM(2020) 513 final.

¹² These projections do not take account of the EuroAsia interconnector, which should increase the opportunities for the development of renewable energy. The base year (2005) emissions considered by Cyprus were recently revised based on updated emission inventories 2019.

period, as the cumulative projected emissions with additional measures over the period 2021-2030 remain slightly below the cumulative annual emission allocations (AEAs) estimated in the plan. With existing measures only, a 14 percentage-point gap for reaching the 2030 target is projected, and a 6% AEA deficit over the period 2021-2030. Long-term targets or objectives are not provided in the NECP.

Cyprus indicates that, according to the ESR, LULUCF credits of up to 600 kt CO₂ equivalents could be used for compliance with the effort sharing target. However, the plan does not explain whether these credits are expected to be generated nor whether this flexibility will be used.

Cyprus prepared a combined national adaptation strategy (NAS) and national adaptation plan (NAP) in 2014. An updated NAS was developed and formally adopted by the Cypriot government in 2017. There is little information on the NAS in the NECP, but the strategy provides a list of measures and actions rather than objectives/targets. The NECP adds that the country's initiative for coordinating climate change actions in the eastern Mediterranean and Middle East is also a relevant measure.

The NECP also looks at the impacts of climate change on heating and cooling degree days¹³. It reports that there was a recent re-assessment of the calculation methodology for the contribution of heat pumps in the renewable sector, in compliance with Directive 2009/28/EC. This re-assessment determined that there had been a sharp increase in the contribution made by renewables to cooling.

The NECP gives an overview of key climate policies to achieve the ESR target, but the extent of their contribution is not always clear. It could therefore not be verified whether the existing and additional measures would suffice to bridge the identified gap, as the impact assessment of the planned measures is incomplete.

The most significant measures to reduce GHG emissions include: (i) the preparation of a recovery system for **fluorinated gases** in certain equipment; (ii) the promotion of anaerobic digestion to treat animal waste; (iii) using sorting at production level to reduce the amount of **waste** sent to solid-waste-disposal sites; and (iv) the reduction in organic waste being sent to landfills.

The import and use of **natural gas** to increase energy efficiency in power generation and the promotion of renewables are both expected to make a significant contribution to cuts in GHG emissions. The government is also examining a green tax reform, including the introduction of a carbon tax, but the effect of this has not yet been modelled.

Transport comprised 23% of the country's GHG emissions in 2016, and emissions from road transport increased by 68% between 1990 and 2016. Cyprus has not set a specific target for emission reductions in the transport sector. In addition to implementing provisions from the EU *acquis*, the final plan proposes further measures, including: (i) vehicle taxation as part of a green tax reform; (ii) a scheme to scrap old vehicles; and (iii) sustainable urban mobility plans to promote modal shifts. The NECP also supports **electromobility** and the necessary charging infrastructure through purchase incentives and public procurement. The specific status of the targets as presented in the scenario analysis is not clear. The NECP expects that about 25-50% of new vehicles will be electric by 2040, but this statement is not matched by planned investments in infrastructure. The positive contribution made by electromobility to reductions in GHG

¹³ https://ec.europa.eu/eurostat/cache/metadata/en/nrg_chdd_esms.htm

emissions will also depend on the energy mix and the penetration of renewables. Measures for non-road modes of transport are not well addressed, while accessibility plans for persons with reduced mobility (including persons with disabilities) are not reflected. The contribution of biofuels to reducing emissions is not discussed, and biofuel measures are not described in detail.

The plan identifies policies and measures for both the **agriculture and forestry sectors**. These measures will help cut emissions in 2030 by more than 24% compared to 2005 levels, with specific targets for anaerobic digestion. The plan refers to the common agricultural policy and the use of the rural development plan to increase the carbon sink. It also refers to incentives for afforestation, especially in urban areas and along roads. Specific measures for forest adaptation linked to the country's rural development programme 2014-2020 are also described.

As of 1 September 2020, Cyprus had not notified its national long-term strategy to the Commission as required under Article 15 of the Governance Regulation.

Renewable energy

Cyprus provides two WAM scenarios that function as the basis for the potential renewable contributions: one with the electricity interconnector (reaching a 30% share) and one without the electricity interconnector (reaching a 22.9% share). Based on the latter scenario, the national contribution to the 2030 EU renewable energy target is specified in the plan, and the **renewable share** is set at **22.9% of gross final consumption** of energy in 2030. This is still considered as adequate, although it is below – but very close to – the share of 23% by 2030 that results from the formula in Annex II of the Governance Regulation. The indicative trajectory over the 2021-2030 period to reach the 22.9% contribution does not reach the reference point¹⁴ of 65% by 2027. Both scenarios presented include the same policies and measures. The NECP identifies the most important policies and measures for promoting renewable energy, such as: (i) promoting renewable energy self-consumption; (ii) net metering for charging electric vehicles; (iii) schemes to support the installation of renewable technologies; and (iv) energy storage.

On the **electricity** sector, Cyprus aims to cover 30% of its electricity consumption from renewable energy sources, mainly solar power, by 2030 in the scenario without the electricity interconnection. In the scenario with the electricity interconnection, renewable energy generation could increase to as much as 50%. If no electricity interconnector is put in place, this 50% share of renewable energy would only be possible by deploying an additional combined-cycle gas-turbine unit after 2023. The information provided by the plan does not make it possible to assess whether the policies and measures are sufficient to achieve this target.

For **heating and cooling**, the updated scenarios provide a renewable energy share of 39% in 2030. This is an increase of 1.6 percentage points compared to the draft NECP. It is also higher than the indicative 1.3 and 1 percentage points given as an annual average for the periods of 2021 to 2025 and 2026 to 2030 respectively. This increase is due to projections for: (i) the further deployment of heat pumps in buildings and solar thermal technologies; and (ii) stable demand over a ten-year period. Information on the role of waste heat or cold is not included. Key policies and measures in the heating and cooling sector focus on: (i) the replacement of old solar collectors for households and businesses; and (ii) the use of solar technologies for high-process heat. These policies and measures are considered sufficient in relation to the achievement of the target, because of the limited number of industries (cement and brick manufacture) that require high-process heat.

¹⁴ Pursuant to Article 4(a)(2) of Regulation 2018/1999.

When setting the **transport** target in the final plan, as requested in Articles 25-27 of Directive 2018/2001¹⁵, the NECP does not include the contributions of all eligible fuels or the applicable multipliers and caps. However, the share of renewables in the transport sector is projected to reach 14.1% in 2030, compared to 7.9% in the with-existing-measures (WEM) scenario, with: (i) support schemes for local biofuel production from waste; (ii) modal shift measures; and (iii) incentives to purchase electric vehicles. Non-road transport modes (aviation and waterborne) are not addressed in the NECP. Moreover, the plan foresees: (i) financial measures/incentives for the purchase of electric vehicles (both new and used) for the period 2020 to 2023; (ii) the extension of the net-metering scheme to households for the installation of electric-vehicle charging (applicable as of 2020-2030); and (iii) the extension of the net-billing scheme to companies for the installation of electric-vehicle charging infrastructure in public/private spaces – including storage – from 2024 to 2030. These policies and measures are considered insufficient in relation to the achievement of the target, because of the limited number of smart meters installed and the very small number of electric vehicles circulating on the island. An earlier incentive scheme for the purchase of electric cars only provided funds for 100 cars, in comparison to about half a million gasoline and diesel vehicles. The scheme is currently on hold.

Energy efficiency

Cyprus' national contribution for **energy efficiency** in 2030 is 2.4 Mtoe for primary energy and 2.0 Mtoe for final energy. This corresponds to a percentage reduction of 8% (primary) and 6% (final) compared to the WEM-scenario projections for 2030. In comparison to the PRIMES 2007 reference-scenario projections, the NECP reports a reduction of 17% (primary) and 13% (final) for 2030.

The plan also provides descriptive information on **policies and measures** beyond 2020 targeting buildings, businesses, street lighting, water, and transport. The Cyprus NECP analyses 18 measures that the country intends to implement, combining energy-efficiency obligation schemes with several alternative measures on financing, taxation and information. It also provides details on issues such as: (i) materiality; (ii) double counting; (iii) taxation; (iv) energy poverty; and (v) measurement, reporting and verification.

The **total cumulative energy savings** of Article 7 of the Energy Efficiency Directive¹⁶ reported in the final NECP are equal to **382.49 ktoe**, thus greatly exceeding the Article 7 savings of 243.04 Ktoe. Cyprus plans to meet its Article 7 requirement through an energy efficiency obligation scheme of 100 Ktoe and several other measures, including: (i) soft loans for energy efficiency; (ii) excise taxes on road-transport fuels, exceeding the minimum levels as required in Directive 2003/96/EC; and (iii) energy consumption fees applied on electricity. The savings expected from fuel taxes are large and they should be fully justified, but it is unclear whether these savings count as eligible and additional under Article 7. For measures on smart meters the information provided is limited. Therefore, it is difficult to judge whether these measures are sufficient to achieve the target.

On **buildings**, the NECP presents indicative milestones for 2030, 2040, and 2050 in final energy demand and expected savings. The target is to renovate around 63 000 households (an average of 5 000 households per year) and around 10 000 (800 buildings per year) non-residential buildings

¹⁵ 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.

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.

by 2030. This seems realistic, but it is not ambitious enough, especially for the residential sector, as Cyprus has 431 059 residential buildings and more than 30 000 non-residential buildings. By 2030, energy renovations in buildings in the residential and tertiary sector will require additional investments of about a total amount of EUR 715 million. This amount is expected to come from a combination of public and private investments. It should be expected that about EUR 400 million for renovations of buildings and industrial plants will have to be funded from the government budget or from EU funds. The Cypriot plan presents policies and measures including: (i) the establishment of an energy fund that provides soft loans for energy efficiency; and (ii) promoting energy efficiency renovation in dwellings and in governmental buildings through structural funds. This has not been activated so far. However, there is no clear timetable for this and the funding sources for some measures are not clear. Cyprus submitted its long-term renovation strategy on 13 May 2020¹⁷.

Energy security

Maintaining a high level of security of supply is a priority in the ongoing transformation of the energy system. The plan illustrates how Cyprus' **energy security** will be improved by the future EuroAsia Interconnector¹⁸ and by an increased share of domestically sourced renewable energy. When considering risks, the plan takes into account the specific risks of isolated energy islands.

On the **diversification of sources**, the plan recalls that Cyprus is highly dependent on imports, mostly of oil and oil products, which are currently its largest energy source. Domestic renewable electricity should also play a prominent role in the future energy mix.

On **oil and gas**, Cyprus aims to increase the role of natural gas, which should substitute for oil in electricity production. Cyprus is also planning to diversify its distribution routes, including through the development of pipelines, LNG facilities, and a new storage facility for oil.

Cyprus is also upgrading and modernising its **storage facilities** for oil and liquefied petroleum gas. It is also building an LNG import facility to improve its security of energy supply and reduce the cost of electricity generation. The plan envisages significant further measures and investments in increasing flexibility and storage capacities to ensure sufficient power generation capacity. Cyprus is considering the introduction of a strategic electricity reserve as a possible measure for the near future.

The plan does not include considerations on **cybersecurity**.

The plan does make sufficient links with the **emergency plans** for gas, electricity and oil, provided for by the applicable sectoral rules. However, no direct references to these plans can be found in the plan.

In general, objectives are not quantified in the plan, but planned **policies and measures** are considered sufficient to achieve the objectives in the field of energy security.

¹⁷ Cyprus submitted its long-term renovation strategy pursuant to Article 2(a) of Directive 2010/31/EU on the Energy Performance of buildings on 13 May 2020. However, this assessment is only based on the building-related elements provided in the final NECP.

¹⁸ <https://euroasia-interconnector.com/>

Internal energy market

The plan states that Cyprus aims at an **interconnectivity level** of 15% for 2030, which is compliant with the target set at EU level. The plan lists current projects of common interest that ensure interconnectivity as Cyprus is currently an energy island with no interconnection capacity. A key project to improve interconnectivity is the EurAsia interconnector between the power grids of Crete, Cyprus, and Israel. This interconnector should be operational by 2024 and will create even greater ambitions for future interconnectivity. The EuroAsia Interconnector will be implemented in two phases, 1000 MW being the first and 2000 MW the second phase. By 2030 the interconnector shall satisfy /address the peak demand of Cyprus (1000 MW). System-level interconnections to Greece and Israel should make it possible to optimize and integrate renewable electricity at regional level.

Given the target of 26% renewable electricity in 2030, the NECP provides an overview of the development: (i) of the different sources of **flexibility**, more specifically non-discriminatory market participation of demand response (the potential of which is estimated at 50 MW, i.e. 5% of peak load, by 2030); and (ii) of electricity storage. The NECP lists further measures designed to better integrate renewable electricity, including the introduction of renewable energy self-consumption, net metering, and decentralised storage.

The plan provides a sufficient overview of the current **market conditions** for electricity. Cyprus has set objectives to: (i) introduce competitive wholesale markets; (ii) integrate renewable electricity production; and (iii) establish interconnectivity with the EU power market. Specifically, for retail-market issues, the plan in places lacks detailed information on the current retail-market situation. Moreover, it also lacks quantitative information and other targets for retail-market competitiveness. Cyprus has said that these targets and information will be introduced at a later stage. This is to some extent understandable given that the country plans for functioning competitive electricity markets to be operational by the end of 2021. Nevertheless, the NECP contains: (i) no discussion of potential barriers to entry to the retail-market; (ii) no key performance indicators; and (iii) no mechanism to track the development and progress made in improving competition in the electricity market. To date, the Electricity Authority of Cyprus is still the sole supplier of electricity in the country.

The final plan includes several **policy objectives and measures** related to the internal energy market (e.g. measures to ensure the non-discriminatory participation of new market participants and the different flexibility sources in all energy markets). Moreover, it outlines plans to modernise the network infrastructure, including though the rollout of 400 000 smart meters by 2027. The plan treats these smart meters as a pre-requisite for the gradual removal of barriers to entry for both new electricity-market participants and new electricity-market technologies (active customers, citizen energy communities, aggregators, demand-response features). Those measures, which are also analysed for their role in alleviating energy poverty as recommended by the Commission, are considered sufficient in relation to the achievement of the general objectives.

On **energy poverty**, Cyprus reports the number of households affected as follows: 5.8% of the total population is vulnerable to energy poverty, with 2.62% in energy poverty. Since 2013, 1.5% of the population has applied for – and benefited from – measures in place to reduce energy poverty. In addition to existing measures, the plan announces the government’s intention to: (i) expand – starting in 2020 – the categories of vulnerable customers of electricity; and (ii) introduce income criteria to better target measures to those in need. However, no objective for energy poverty reduction is provided.

Research, innovation and competitiveness

The country's strategic framework for **research and innovation** strategic framework revolves around nine pillars and enablers of strategic importance. The planned governance system is described in detail and appears to be sufficient, albeit rather complex. The NECP also presents a list of the suggested R&I activities and budget allocations for these activities from the national energy and climate fund, with a specified budget for each action. The NECP plans for R&I to reach as much as 1.5% of GDP by 2023, implying annual spending of EUR 395 million. The NECP also aims to raise the share of private investment in R&I from 43% in 2017 to 50% by 2023. Renewables, natural gas and energy efficiency are identified as priorities. In its scenario for 2050, Cyprus plans to become an exporter of electricity mainly produced from solar energy. At the same time, gas will be available for backup purposes and for security of energy supply. A detailed table with new policies and measures for the period 2021-2030 is presented in the NECP. These policies and measures mostly target renewables, clean transport, and storage. Although there is no information on the quantitative impact of individual policies and measures, in theory the planned policies and measures should be sufficient to reach the target.

The NECP makes reference to the **strategic energy and technology plan** (SET plan), combined with the Cyprus smart specialisation strategy, as a guide for stakeholders to identify priority areas in R&I that will respond to both market needs and national targets for decarbonisation. In addition, the plan provides a list of competitive, EU energy-and-climate-related programmes for the 2014-2020 period, including funding figures. However, these programmes do not allocate national funds or activities by implementation plan, nor do they comment on how the SET plan will help Cyprus to reach its national energy-and-climate objectives.

In its NECP, Cyprus presents two separate objectives for **competitiveness**. The first objective seeks to reduce energy-import dependency and its associated risks and costs for products and services. This objective also identifies a number of investment priorities to increase renewables and energy savings, while simultaneously increasing national GDP and employment by about 0.3% each in the period 2021-2030. The second objective is set out in the country's new industrial policy for 2019-2030. This objective is to create robust, flexible, intelligent and technologically advanced industries and services that will contribute substantially to the growth and competitiveness of the Cypriot economy and to the well-being of its people. The existing and planned policies and measures under this objective address: (i) research in energy and climate; (ii) the development of innovative products and services; (iii) partnerships to make the country a hub for cleantech innovation and accelerate startups; (iv) the implementation of energy saving and renewable energy measures; (v) infrastructure improvements; and (vi) the promotion of modernisation and information technologies. These policies and measures are consistent with the challenges and vision stated in the objectives, although there is only limited reference to skills in these policies and measures. However, the plan mostly provides frameworks for funding and actions, rather than specific targets.

4. COHERENCE, POLICY INTERACTIONS AND INVESTMENTS

The final plan explores the **interlinkages** and synergies between many policies in decarbonisation (GHGs and renewable energy) and energy efficiency. Synergies and interlinkages between the decarbonisation objectives and the security of supply goals remain to

be further – and better – explored. The plan briefly discusses the interlinkages between use of bioenergy and land use.

The information provided on **investment needs** and mechanisms is very detailed, covering: (i) renewable energy; (ii) the transformation of the network and the introduction of smart meters in power distribution; (iii) the improvement of power-transmission networks; (iv) infrastructures for importing and using natural gas; (v) increased energy efficiency in power generation; (vi) actions on energy efficiency in households, businesses, the public sector, and the water sector; (vii) transport infrastructures and sustainable mobility; and (viii) technological research. Figures for investment needs per sector are provided, but it is not clear what part of these needs would be covered by the national budget, what part by EU funding, and what part by private investments. The NECP further explains that the transition to a more market-oriented financial-support scheme for climate-and-energy projects will be a challenge while describing the bottlenecks to this transition. The macroeconomic assessment provided in the NECP is complete and detailed including the impact on economic output, different sectors of economic activity, employment and energy prices. The methodology applied for estimating investment needs under the various dimensions/sectors is not always clear.

The NECP includes a description of existing renewable **energy subsidies**, in particular for fossil fuels. The plan indicates that energy subsidies are divided into two main categories: subsidies provided to support renewable energy sources, and subsidies for oil-product prices. The plan does not appear to fully reflect internationally used definitions. A timeline to phase out energy subsidies – in particular fossil-fuel subsidies – is not mentioned in the final plan.

On the **just and fair transition**, the final NECP provides a very good analytical basis on the impact of the transition including its impact on employment. However, it does not provide any proposals for measures to mitigate these potential impacts on employment, upskilling and reskilling initiatives.

The final plan provides information and analysis of **air quality** and air emissions policy. It also provides a detailed quantitative description of the impacts of the additional measures on air pollutants compared to existing measures. All air-pollutant emissions are projected to decrease in this detailed description, except SO₂, due to the increased use of oil-fired electricity generation. The effects of this oil-fired electricity should be mitigated to ensure that Cyprus continues to meet the emission-reduction commitments for this pollutant under Directive (EU) 2016/2284. The NECP makes reference to the national action plan for improving air quality in Cyprus, which was adopted in May 2018.

The **circular economy** and its potential for reducing GHG emissions is only mentioned in relation to waste management. The NECP analyses the interactions with the circular economy only very partially, without covering prevention and without quantification of impacts.

The final plan hardly refers to the synergies and trade-offs of energy and climate policy with **biodiversity** and the role of ecosystem services for mitigation and adaptation. The sustainable supply of biomass is not analysed, despite the major role of bioenergy in the energy mix.

The NECP includes trajectories for **bioenergy demand and biomass** supply by feedstocks and origin. Since no forest biomass is currently used (and there are no plans to use any in the future), it is estimated that there will be no impact on the LULUCF sink.

The NECP does not consider the consistency of the country's **adaptation** plans with other policies. For example, there is no information on how climate-change risks might affect energy

supply (e.g. wildfires and storms destroying power networks), in spite of the fact that Cyprus' NAS considers the energy sector to be important.

To remedy this oversight, the climate risks for the energy sector would need to be specifically identified and followed by specific policies and measures. Energy-efficiency measures need to be formulated in a way that is mindful of adaptation co-benefits and trade-offs under future climate scenarios.

Information is also lacking on adaptation co-benefits and trade-offs for energy efficiency, such as in the thermal management of buildings. The application of the 'energy-efficiency first' principle is an important element that has been taken into consideration in the NECP. The plan specifies that, when designing the energy-and-climate policies included in the NECP, priority should be given to policies and measures that reduce primary or final energy consumption and improve energy security. It states that other measures should be considered only after energy-efficiency actions are deemed unfeasible or very costly.

The NECP only makes reference to the 'Clean Energy for EU Islands' initiative, without giving details.

The final version of the plan largely complies with data transparency requirements and with rules for 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

Cyprus needs to swiftly proceed with implementing its final integrated national energy and climate plan notified to the Commission on 22 January 2020. This section provides some guidance to Cyprus 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 measures Cyprus could consider when developing its national recovery and resilience plan in the context of the Recovery and Resilience Facility¹⁹.

Guidance on the implementation of the national energy and climate plan

Cyprus' final NECP sets a 2030 target for domestic, non-ETS GHG-emission reductions of 21% compared to 2005, in line with the its Effort Sharing Regulation²⁰ target of a 24% reduction with the available flexibilities for Cyprus. With existing measures, a 14 percentage-point gap to the ESR target is projected. To cover the remaining gap with planned measures, the NECP refers to the use of the flexibility mechanisms such as the banking of AEA surpluses and LULUCF net credits.

¹⁹ On 17 September 2020, the Commission has put forward the Annual Sustainable Growth Strategy 2021 (COM(2020) 575 final), as well as guidance intended to help Member States prepare and present their recovery and resilience plans in a coherent way, without prejudice to the negotiations on the proposal for a Regulation on the Recovery and Resilience Facility in the European Parliament and the Council (Commission Staff Working Document. Guidance to Member States – Recovery and resilience plans, SWD (2020) 205 final).

²⁰ Regulation (EU) 2018/842.

The Cypriot contribution to the EU 2030 renewables target is very close to the share resulting from the formula in Annex II of the Governance Regulation, although the energy-efficiency contribution is of rather low ambition. However, the successful and full implementation of the additional policies and measures after 2022 is not guaranteed in the plan. This is because Cyprus requires: (i) significant investments from both public and EU funds for energy renovations in buildings and industry; and (ii) a substantial commitment to promote sustainable transport and electric vehicles.

For **renewables**, Cyprus committed to increase the share of renewables in gross final energy consumption to 22.9%. Exploring potential ways to bridge this gap and analyse other advanced solutions (such as demand response and batteries) before 2030 is necessary. Advanced solutions would smooth out fluctuations in electricity demand, thus facilitating the use of higher shares of variable renewable-energy generation. Developing national strategies for energy efficiency in heating and cooling and transport – while including milestones for the shares of renewable-energy sources in these two sectors – would help to decarbonise them.

On **energy efficiency**, Cyprus would benefit from adopting and implementing additional policies and measures that would deliver additional energy savings by 2030. It is important that the impacts and expected energy savings of the proposed policies and measures are well assessed to ensure they effectively contribute to the targets. There is also a need to ensure that the ‘energy-efficiency first’ principle is properly implemented across all areas of the energy system. This is especially important when planning new gas-fired power plants, where potential for the development of distributed generation by photovoltaic panels would need to be fully assessed. Speeding up the large-scale roll-out of smart meters would enable this development.

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** initiative²¹, there is scope for Cyprus to intensify efforts to improve the energy performance of the existing building stock with specific measures, 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. Cyprus will be able to underpin the substantial energy-saving potential of its existing building stock by implementing its long-term renovation strategy, in accordance with Article 2(a) of the Energy Performance of Buildings Directive²².

On **energy security**, measures in the natural-gas sector needs to be swiftly implemented so that natural gas will not become a concern for energy security once it becomes a significant part of the energy mix. The EuroAsia Interconnector will also be important in ending electricity isolation. Cyprus would benefit from adopting specific measures to strengthen cybersecurity in the energy sector.

On the **energy market**, Cyprus is especially invited to strengthen the monitoring and analysis of competitiveness in its retail market, in anticipation of a fully-functioning, competitive electricity

²¹ Communication ‘A Renovation Wave for Europe – greening our buildings, creating jobs, improving lives’, COM(2020)662 and SWD(2020)550.

²² Cyprus submitted its long-term renovation strategy in accordance with Article 2(a) of Directive 2010/31/EU on the Energy Performance of buildings on 13 May 2020.

market. In particular, it can achieve this by: (i) better reflecting on the underlying causes of barriers to entry; (ii) setting up a mechanism (e.g. key performance indicators) to track developments and progress; (iii) assessing the level of market concentration and detecting anti-competitive practices; and (iv) introducing potential remedies.

Cyprus would benefit from choosing clear indicators to track the achievement of milestones towards its **R&I and competitiveness** objectives. Over time, the gathering of granular R&I and competitiveness data will help to strengthen this process. Cyprus is encouraged to ensure synergies between its R&I and competitiveness actions and its SET-plan activities. Cyprus would also benefit from further strengthening the link between the competitiveness objective and the policies and measures to put in place for other sectors (such as energy, climate, transport, etc.) by 2030.

In its NECP, Cyprus estimates that the overall amount of climate-and-energy **investment** in the country from 2021 to 2030 will be EUR 13.7 billion, most of which will go to road transport. The government has also analysed the investment needs in each sector. To implement its investment plans, Cyprus needs to provide information on the expected contribution from the national budget to financing investments in each sector. A large share of the financing will have to come from private sources. It will therefore be important, as indicated in the plan, to create appropriate frameworks for the development of these private sources.

Cyprus is invited to continue ongoing efforts on **regional cooperation** with a view to intensifying exchanges and initiatives that will facilitate the implementation of its national energy and climate plan. In particular, its regional cooperation would benefit from focus on: (i) decarbonisation; (ii) renewables; (iii) energy-efficiency initiatives; (iv) the internal market; (v) energy security; (vi) R&I; and (vii) competitiveness. Cyprus is invited to further explore the possibilities of the ‘Clean Energy for EU Islands’ initiative²³. Cyprus is also invited to better exploit the potential of the **multi-level climate and energy dialogues** to actively engage with regional and local authorities, social partners, civil society organisations, the business community, investors and other relevant stakeholders and to discuss with the different scenarios envisaged for its energy and climate policies.

Cyprus is encouraged to also continue to carefully monitor the distributional effects of the transition and **energy poverty** in its territory, and strengthen national policies and targeted measures to address it. Cyprus 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. The momentum of the ‘renovation wave’ initiative of the European Green Deal is an opportunity to intensify efforts to tackle energy poverty by improving the energy performance of the existing building stock. 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 cooperatives, buying energy-saving appliances for social enterprises to rent out).

²³ The Commission will adopt in November 2020 a strategy on Offshore Renewable Energy, which will provide a vision and a series of policy initiatives for steering up to 2050 a massive, cost-effective and sustainable scale up of offshore renewable energies and related value-chains in the whole EU.

Cyprus is invited to extend and update the identification and reporting on **energy subsidies** by preparing a more complete inventory and initiate action to phase them out, in particular for fossil fuels. The green transition in Cyprus would receive a further boost from a rapid phase-out of the fossil-fuel subsidies identified in recent Commission analyses. This would involve the development and implementation of specific plans with associated timelines, coupled with measures to mitigate the risk of households' energy poverty.

For all investments implementing the national energy and climate plan, Cyprus 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, Cyprus 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 which should be available to Cyprus 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 also be available for Cyprus 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 Cyprus' plan in that context. Nevertheless, the implementation of Cyprus' 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 Cyprus 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**²⁴. In particular,

²⁴ Cf. Annual Sustainable Growth Strategy 2021 (COM(2020) 575 final), pp. 9-12.

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

- Measures introducing a green tax reform coupled with measures to promote sustainable mobility, including greening public transport and creating appropriate infrastructure;
- Measures opening up the electricity market to facilitate the increase of the production and use of renewable energy, notably in transport and energy production;
- Measures improving energy efficiency of all sectors of the economy, including buildings, and covering both urban and rural households.

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 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 CYPRUS, 2021-2027

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

Programme	Amount	Comments
Cohesion policy funds (ERDF, ESF+, Cohesion Fund)	0.9	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.	0.5	In current prices. Commitments under the multi-annual financial framework.
Recovery and Resilience Facility	1.0	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	0.1	In 2018 prices. Commitments both under the multi-annual financial framework (MFF) and Next Generation EU.
ETS auction revenue	0.2	Indicative: average of actual 2018 and 2019 auction revenue, multiplied by seven. 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	7.0	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, unless indicated differently.

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	Clarify how it plans to reach its 2030 greenhouse gas target for sectors outside the EU emissions trading system of -24% compared to 2005 by considering further cost-efficient policies over the period 2021-2030.	Largely addressed	The consideration of further cost-effective measures has been largely addressed, because more details have been provided than in the draft NECP: (i) a WAM scenario has been modelled; and (ii) total net removals that may be taken into account for compliance have been provided. However, the GHG impacts of individual policies and measures (PaMs) are lacking in the analysis, and some data inconsistency has been found across the documentation.
	Clarify the intended use of flexibilities between the effort sharing and accounted land use, land use change and forestry sectors.	Largely addressed	This has largely been addressed because the NECP refers to the use of the flexibility mechanisms of the ESR, such that Annual Emission Allocations (AEA) would no longer have to be purchased. Together with the use of flexibility, the WAM scenario would add up to the 2030 ESR target.
	Particular consideration could go to transport.	Largely addressed	Policies and measures have been reported in the transport sector that are supported by a broad scenario analysis of transport decarbonisation.
Decarbonisation - renewables	Significantly increase the level of ambition for 2030 to a renewable energy share of at least 23% as Cyprus' contribution to the Union's 2030 target for renewable energy, as indicated by the formula in Annex II under Regulation (EU) 2018/1999 and after due consideration of relevant circumstances and national constraints.	Partially addressed	Cyprus provided two WAM scenarios that provide the basis for the potential renewable contributions: one with the electricity interconnector (reaching a 30% share) and one without the electricity interconnector (reaching a 22.9% share). Based on the latter scenario, Cyprus sets out a contribution of a 22.9% share of energy from renewable sources in gross final consumption of energy in 2030.
	Include an indicative trajectory in the final integrated national energy and climate plan that reaches all the reference points pursuant to Article 4(a)(2) of Regulation (EU) 2018/1999 in accordance with that share, in view of the need to increase the level of efforts for reaching this target collectively.	Partially addressed	This level of ambition is very close to the share of 23% in 2030 which results from the formula contained in Annex II of the Governance Regulation. This situation would also require an indicative trajectory in the final plan that reaches all reference points in accordance with the national contribution set out in the final plan. However, the indicative trajectory over the 2021-2030 period to reach the 22.9% contribution does not reach the reference points of 65% by 2027 – this trajectory greatly depends on the electricity sector.

<p>Put forward detailed and quantified policies and measures that are in line with the obligations laid down in Directive (EU) 2018/2001 of the European Parliament and Council and enabling a timely and cost-effective achievement of this contribution.</p>	<p>Partially addressed</p>	<p>Up to 2023, the two scenarios (WAM with and without the interconnector) are identical since the planned policies and measures adopted were used in both scenarios. This is because there was already budget approval for implementing the additional measures for the period 2020-2022. Most of the measures related to renewable electricity-production projects will materialise because most of those projects are being implemented. However, the successful and full implementation of the WAM package scenario after 2022 is not guaranteed in the plan because Cyprus requires: (i) significant investments from both public and EU funds for energy renovations in buildings and industry; and (ii) a substantial commitment to promote sustainable transport and electric vehicles.</p>
<p>Increase the level of ambition in the heating and cooling sector.</p>	<p>Largely addressed</p>	<p>For heating and cooling, the updated scenarios provide for a renewable-energy share of 39% in 2030. The final plan shows how Cyprus intends to increase renewable energy in heating and cooling by an indicative 1.6 percentage points as an annual average calculated for the periods of 2021 to 2025 and 2026 to 2030, although the 2020 baseline year of the renewable energy share is not entirely clear.</p>
<p>Increase the level of ambition in the transport sector to meet the indicative target included in Article 23 of Directive (EU) 2018/2001 and the transport target in Article 25 of Directive (EU) 2018/2001.</p>	<p>Partially addressed</p>	<p>The share of renewable energy in transport is projected to reach 14.1% in 2030 compared to a with-existing-measures scenario of 7.9%. This 14.1% scenario includes: (i) support schemes for local biofuel production from waste; (ii) modal shift measures; and (iii) incentives to purchase electric vehicles. Cyprus did not provide the detailed calculation of the transport target as required in the Renewable Energy Directive, taking into account the contributions of all eligible fuels as well as the applicable multipliers and caps.</p>
<p>Provide additional details and measures on the enabling frameworks for self-consumption and renewable energy communities in line with Articles 21 and 22 of Directive (EU) 2018/2001.</p>	<p>Largely addressed</p>	<p>The final plan includes existing measures for net metering, net billing, self-consumption, communities, and support schemes for production from renewable installations. The final plan provides further details on how the new schemes for net billing for photovoltaics (PVs) and combined heat and power (CHP) fueled by biomass will operate. These PV and CHP schemes – and all new commercial RES projects – do not expect to receive any subsidy from the RES and Energy Efficiency fund. Thus, PV, CHP and commercial RES projects will also operate through market mechanisms.</p>

Energy efficiency	Substantially increase its ambition towards reducing both final and primary energy consumption in 2030 in view of the need to increase the level of efforts to reach the Union's 2030 energy efficiency target.	Partially addressed	Increased, but it is still assessed as low for PEC and very low for FEC compared to the EU level of efforts.
	Complete projections and scenarios to allow assessing the expected impacts of the new planned policies, measures and programmes on primary and final energy consumption for each sector at least until 2040, including for the year 2030, and including an indicative trajectory from 2021 onwards.	Largely addressed	The final NECP now includes more detailed information on the definition and explanation behind the rationale of “with existing measures” (WEM) and “with additional measures” (WAM) scenarios. The final NECP presents all main measures contributing to the WEM and WAM scenarios. The NECP fails to demonstrate how the various policies and measures will contribute towards the overall national contribution towards the EU target
	Strengthen the focus on energy efficiency in the transport sector by increasing the span of measures related to this specific sector, considering that it would represent half of the energy consumed in the country in 2030.	Partially addressed	All sectors are expected to contribute the most to reach energy efficiency targets. The new efforts to tap into the energy efficiency potential of the transport sector are also noteworthy.
Energy security	Define forward-looking objectives and targets concerning market integration, in particular measures for the gas sector, in view of the plans to achieve supply of natural gas in its territory in the near future.	Largely addressed	Security of supply is a priority on the island. The structure of the Cypriot economy means it is greatly exposed to the volatility of international oil (and in the future) and natural gas prices. Out of 5 060 GWh generated in 2018, only 199 GWh were generated by photovoltaics, which is already the cheapest source of energy on the island.
Internal energy market	Present the state of play regarding the organisation of electricity markets clearly and consistently with targets and objectives described in the internal market dimension.	Largely addressed	When it comes to national constraints, Cyprus is the only country that is not physically interconnected to the internal energy market of the EU. Although analysis indicates that storage could provide the flexibility needs, other potential avenues, such as demand response and batteries before 2030, are not analysed in the plan. Such novel solutions would smooth out fluctuations in electricity demand, thus facilitating the use of greater shares of variable renewable-energy generation.

Research innovation and competitiveness	Further elaborate on national objectives and funding targets in research, innovation and competitiveness, specifically related to the Energy Union, to be achieved between now 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.	Partially addressed	The plan identifies relevant areas where R&I efforts are needed. These efforts are considered credible in relation to the achievement of the target, as Cyprus plans to triple its annual spending on energy-and-climate-related R&I. However, examples and indicators in the NECP are not always clear. On competitiveness, the NECP emphasises the energy sector and the creation of a robust, flexible, intelligent and technologically advanced industry.
	Underpin such objectives with specific and adequate policies and measures, including those to be developed in cooperation with other Member States, such as the European Strategic Energy Technology Plan.	Partially addressed	The NECP makes reference to cooperation with the SET plan but does not give specific figures on how the SET-plan target will be aligned with the national energy-and-climate targets for the period 2021-2030.
Investments and funding sources	Include a comprehensive section identifying all investment needs split by dimension and sub-dimension, along with a clear description of the methodology used for the estimation.	Fully addressed	The NECP provides detailed information on investment needs per the five dimensions of the Energy union, under two scenarios. It also provides estimates on the coverage of investment needs from public and private sources, giving also indication on the usage of EU funds (including also InvestEU and Just Transition Fund). The plan estimates total investments in all sectors and areas (defined as ‘system cost’) will amount to EUR 13.7 billion over the period 2021-2030. This represents the investment needs for the main sectors of the economy (power generation, electricity storage, sustainable mobility, private transport and buildings). The methodology for arriving at this figure – and the link with the budget and investments presented in the policies and measures – are not entirely clear. More transparency on the assumptions would make it easier to understand the estimates.
	Include a comprehensive section identifying the likely national, regional and Union sources for their financing.	Partially addressed	The NECP specifies an array of sources of finance, including estimates on the coverage of investment needs from public and private sources, and an indication of the potential use of EU funds. However, it does not provide any further analysis on each of these sources. Although many measures seem to be budgeted, it remains unclear how much of the national budget should be expected to finance the measures and to what extent.

Regional cooperation	Intensify its existing regional cooperation arrangements with neighbouring Greece as well as other Member States, including in the internal market, energy security, and research, innovation and competitiveness dimension.	Partially addressed	Cyprus added more information on its regional cooperation in the plan, in particular with Greece. Further information was provided on the internal market and energy security aspects of the plan. However, information was limited on cooperation on the EuroAsia Interconnector or the EastMed Pipeline. There should be a risk assessment of the assumptions for the electricity interconnector and the gas pipeline, because these assumptions can have a large impact on the strategy and objectives set. On R&I and competitiveness, Cyprus only described existing cooperation without mentioning how it intends to intensify this cooperation.
	Possibly in the context of the ‘Clean Energy for EU Islands’ initiative, enhance cooperation with Member States and island regions facing similar geographic, climatic and infrastructure related challenges and opportunities in their energy transition.	Not addressed	No further information has been added on the ‘Clean Energy for EU Islands’ initiative. On energy efficiency, more information could have been provided, in particular on the possibilities for cooperation offered by the EU ‘smart islands’ initiative (which aims to promote cooperation between island regions and to which Cyprus also belongs) or the ‘Clean Energy for EU Islands’ initiative.
Energy subsidies	List all energy subsidies.	Partially addressed	In comparison with the draft plan, an update on renewable-energy subsidies is included in the final plan. Information on fossil-fuel subsidies is not included.
	List in particular fossil fuels subsidies.	Not addressed	Information on fossil-fuel subsidies is not provided in the relevant section of the plan, although fossil-fuel subsidies were identified in recent Commission analyses on energy subsidies.
	List actions undertaken and plans to phase-out energy subsidies, in particular for fossil fuels.	Partially addressed	The plan states that policies, timelines and measures planned to phase out energy subsidies – in particular for fossil fuels – were not applicable in Cyprus.
Air quality	Complement the analysis of the interactions with air quality and air emissions policy, presenting and quantifying the impacts on air pollution for the various scenarios, providing underpinning information, and considering synergies and trade-off effects.	Largely addressed	The quantification of impacts on air pollution is fully addressed, because the NECP contains a detailed quantitative description of the impacts of the additional measures on air pollutants compared to existing measures. However, the NECP does not address synergies and trade-off effects.

<p>Just transition and energy poverty</p>	<p>Integrate just and fair transition aspects better, notably by providing more details on social, employment and skills impacts of planned objectives, and policies and measures.</p>	<p>Largely addressed</p>	<p>Employment is examined as a whole at national level, with employment as a result of ‘green’ policies reviewed in the international bibliography. The NECP also provides a comparative analysis of job creation (working days) between two scenarios, the WEM scenario and the WAM scenario. There is no reference to skills. On social impacts, the NECP provides a comparative analysis of price changes in electricity and automotive fuel for the year 2030 between the WEM and WAM scenarios, as well as a distributional impact assessment on households’ income.</p>
	<p>Further develop the approach to addressing energy poverty issues, including by adding considerations of how the proposed policies and measures across dimensions are expected to impact the level of energy poverty as required by the Regulation (EU) 2018/1999.</p>	<p>Largely addressed</p>	<p>On energy poverty, Cyprus reports the number of households affected as follows: 5.8% of the total population is vulnerable to energy poverty, with 2.62% in energy poverty. Since 2013, 1.5% have applied for – and benefited from – the measures in place to reduce energy poverty. In addition to existing measures, the plan announces the country’s intention to: (i) expand, starting in 2020, the categories of vulnerable customers of electricity; and (ii) introduce income criteria to better target measures to those in need. These policies and measures are considered credible in relation to the achievement of the target. However, details on the innovative idea to also tackle energy poverty through energy communities and ad hoc schemes are not provided. No objective regarding energy poverty reduction is provided. As well, no targets on energy poverty reduction are provided.</p>