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Assessment of the final national energy and climate plan of France

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1. SUMMARY

France's final integrated national energy and climate plan ('NECP')¹ sets a 2030 target for sectors not covered by the EU emissions trading system (non-ETS) greenhouse gas (GHG) emission reductions. This is in line with the national 2030 legal reduction targets of -37% compared to 1990², that contribute to the overall EU level reduction target of 40%. France has also set a national target for total **greenhouse gas emissions** of -40% by 2030 compared to 1990 (excluding LULUCF), which corresponds to -41.5% compared to 2005. However, with existing measures, and on the basis of the projections for the sectors covered by the Effort Sharing Regulation (ESR), the Commission estimates that France would fall short of its 2030 non-ETS target by 11 percentage points. The national long-term objective is to divide by six the level of GHG emissions by 2050 compared to 1990, consistent with the national long-term strategy. If France follows the trajectory set out to reach the carbon neutrality target, it could exceed its non-ETS 2030 target by 4 percentage points, assuming that the LULUCF sector creates no debits.

France's **renewable energy** contribution to the EU target is 33% of gross final energy consumption in 2030. This is considered sufficient, as it is in line with the formula set out in Annex II of the Governance Regulation. Compared to the draft plan, the ambition level has been increased by 1 percentage point, but the final plan does not explain where this increase will come from. An indicative trajectory has been added to develop the 2030 perspective, however this falls short of including interim points for 2022, 2025, 2027 and 2030.

For **energy efficiency**, France's contribution to the EU target has been slightly amended compared to the draft plan, following some technical clarifications. Final energy consumption was assessed as being sufficient³ as it amounts to 120.9 Mtoe in 2030. By contrast, primary energy consumption was assessed as being modest as it amounts to 202.2 Mtoe. The final plan provides detailed information on a number of specific actions on buildings, for example, a quantitative objective to renovate 370 000 residential buildings per year by 2030 and to end coal and oil use for household heating by 2028. France submitted its long-term renovation strategy on 2 June 2020⁴.

France has set objectives for **energy security** in terms of (i) diversifying supply through key infrastructure projects and energy import dependency reduction and (ii) increasing energy system flexibility. France has made an effort to improve regional cooperation in view of improving energy security.

Regarding the **internal energy market**, France reports on the phasing out of regulated retail prices for the supply of gas and on the reduction of the perimeter of regulated prices for the supply of electricity. The projected interconnection level by 2030 is 26 GW corresponding to

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 of the European Parliament and of the Council of 30 May 2018 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013.

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

⁴ France submitted the long-term renovation strategy pursuant to Article 2a of Directive 2010/31/EU on the Energy Performance of buildings on 2 June 2020. The Commission's assessment is based only on the building related elements provided in the final NECP.

approximately 16.5% of interconnection level. This figure goes beyond the EU interconnectivity target of 15% by 2030. To achieve this target, France is implementing electricity interconnection projects under the projects of common interest (PCIs).

On national objectives and funding targets for **research and innovation (R&I)**, France proposed some national policies, plans and roadmaps including on R&I aspects. On funding targets, France refers to its 2018 R&D expenditures and recalls that the trend over recent years has been to increase the funding of public research in new energy technologies. However, quantified objectives and targets linked to the funding are not mentioned, nor are the timelines to achieve them.

The estimated annual amount of (public/private and public) **investments** for 2019-2032 is in the range of between EUR 45 and 85 billion of additional investments compared to a scenario without energy transition objective (corresponding to 1.9-3.6% of GDP in 2018). This includes EUR 15-25 billion for buildings, EUR 20-50 billion for transport and EUR 10 billion for energy and electricity grids. The great investment plan (GIP) and investments for the future programme (('PIA'), '*Programme d'Investissements d'Avenir*') are some of the national sources of investment but it is unclear to what extent they will contribute to the additional investments required.

A list of all **energy subsidies** and actions undertaken and planned to phase them out, in particular for fossil fuels is included in the final plan and the list appears to be in line with the figures in recent Commission analyses on energy subsidies. The final plan has been completed as regards tax exemptions for fossil fuels.

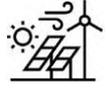
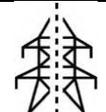
The final plan considers the **just and fair transition** aspects and provides information on social, employment and skills impacts of a transition to a climate neutral economy, for example employment in carbon intensive industries and green jobs, transportation and logistics, energy poverty and implied distributional impacts of envisaged measures in housing, as well as skill needs and skill mismatches based on strategic sector analysis.

On **energy poverty**, France refers to the number of households affected as measured against two indicators used by the National Energy Poverty Observatory and reports on a series of tools to reduce energy poverty such as the energy cheque ('*le chèque énergie*'), and dedicated measures linked to tax credits for energy transition, energy saving certificates, financial and technical support for housing renovation and for mobility.

There are **several examples of good practice** in the final plan. This includes the carbon neutrality objective by 2050, the goal of closing coal-fired power plants by 2022 and to end coal and oil use for household heating by 2028, or the objective of ending sales of thermal vehicles for cars and light commercial vehicles by 2040. Efforts to phase out energy subsidies are also noteworthy.

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

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,

	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) (%)	-14%	-14%	-37%	As in ESR
	National target/contribution for renewable energy: Share of energy from renewable sources in gross final consumption of energy (%)	16.6%	23%	33%	Adequate (33% is the result of RES formula)
	National contribution for energy efficiency: Primary energy consumption (Mtoe) Final energy consumption (Mtoe)	239.5 148.9	219 131.4	202.2 120.9	Modest Sufficient
	Level of electricity interconnectivity (%)			16.5%	N.A.

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

2. FINALISATION OF THE PLAN AND CONSIDERATION OF COMMISSION RECOMMENDATIONS

Preparation and submission of the final plan

France **notified** its final national energy and climate plan to the Commission on 17 April 2020.

The national energy and climate plan builds on the multiannual energy planning establishing the French governments' priority actions in energy over the next 10 years. It is divided into two five-year periods (up to 2023 and up to 2028) and includes the national low-carbon strategy providing guidelines to enable the transition to a low-carbon economy across all sectors. Both documents were adopted by decree in April 2020, shortly before the submission of the plan. The guiding objectives of the plan are to decarbonise the energy system and to achieve carbon neutrality by 2050.

Both framework documents have been subject to an **extensive consultation** process. The most recent of which closed on 19 February 2020. France provided the link to the online summary⁶ of the public consultation and the plan states that the results of the public consultation have been taken into account. The consultations involved civil society, members of parliament,

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 <https://ppe.debatpublic.fr/compte-rendubilan-du-debat>

representatives of industry, social partners, regional and local authorities and committees of experts, including the Environmental Agency which carried out a strategic environmental assessment under Directive 2001/42/EC, whose recommendations have been mostly taken into account⁷. The opinions of the bodies consulted are available on the Ecological Transition and Solidarity Ministry's website.

Other EU Member States were consulted in 2019. A meeting with France's neighbouring countries, countries whose energy systems are linked to France's energy system and the Commission took place on 1 March 2019. Work was also stepped up within other bodies, such as the Pentalateral Energy Forum and the North Sea Wind Forum. France's neighbouring countries were invited to take part in the public consultation launched on 20 January on the revised draft multiannual energy planning. The final plans reflect the comments received.

Consideration of Commission recommendations

In June 2019, the Commission published eight recommendations on France's final plan⁸. Annex II to this staff working document provides a detailed account on how the different elements of Commission recommendations have been reflected in the final plan. Overall, the final NECP **largely addresses** most of the Commission recommendations.

The main changes introduced in the final plan are the following:

On **renewables**, France **largely addressed** the recommendations received. The national contribution was raised and the policies and measures included in the plan to support the achievement of the proposed objectives and contributions for renewable energy are clear, well detailed and cover the expected scope to effectively support renewable energy up to 2030. However, the recommendation to include an indicative trajectory that reaches all the reference points and to reconcile the objectives and targets in heating and cooling and transport sectors with the legal obligations⁹ contained in legislation¹⁰ were partially addressed. The recommendation to ensure that the 2020 target is fully met and maintained as the baseline from 2021 onwards is not addressed either, as the plan does not assess the achievement of the 2020 target and only indicates a renewables share for 2023 that is higher than the 2020 target.

On **energy efficiency**, France **largely addressed** the recommendation to review its efforts to achieve the goal on primary energy consumption and to better detail the planned policies and their impacts. Regarding primary energy consumption, the contribution remains broadly the same, but the level of ambition was marginally increased for final energy consumption. More information was provided on the national measures, but their expected impacts are not fully

⁷ "Déclaration environnementale" from the Environmental Agency on the MEP: <https://www.ecologie.gouv.fr/sites/default/files/20200422%20Déclaration%20environnementale%20PPE.pdf>

"Déclaration environnementale" on the NLCS: <https://www.ecologie.gouv.fr/sites/default/files/DGEC%20-%20EES%20SNBC%20-%20declaration%20environnementale>

⁸ Commission Recommendation of 18 June 2019 on the draft integrated national energy and climate plan of France covering the period 2021-2030, C/2019/4410.

⁹ As regards the heating and cooling sector, neither the draft nor the final plan does allow for reconciliation with the objective of increasing the share of renewable energy in the sector by an indicative 1.3 and 1 percentage points annual averages for the periods 2021-2025 and 2026-2030 respectively. In the transport sector, the final plan does not include a detailed calculation of the share of renewable energy in accordance with Articles 25 to 27 of the Renewable Energy Directive.

quantified. On buildings, the final NECP provides additional information. The long-term renovation strategy was submitted on 2 June 2020.

On **energy security**, France did **not address** the recommendation to specify the measures supporting the energy security objectives and diversification and reduction of energy dependency, including measures ensuring flexibility as well as information on planned nuclear generation capacity. Very few elements have been added compared to the draft NECP.

On the **internal energy market**, France **partially addressed** the recommendation to define forward-looking targets concerning market integration, including the development of more competitive wholesale markets and the progression towards fully market-based prices. The Commission notes that while France does report on further deregulation of retail prices, in particular for gas, the NECP does not include objectives or measures related to the increase of competition in wholesale markets, particularly on electricity.

On **research, innovation and competitiveness**, France **partially addressed** the recommendation to clarify the national objectives and funding targets as well as underpin such objectives with detailed policies and measures. In particular, France made efforts to propose policies and measures under the fifth dimension of the Energy Union. France provided detailed information on their strategic energy technology (SET) plan within the various implementation plans and its level of ambition of national objectives on competitiveness. In addition, the french recovery plan presented in September includes quantified national objectives and funding targets in research, innovation and competitiveness, notably as regards energy transition areas.

France **largely addressed** the recommendation to strengthen **regional cooperation**. In particular, regional cooperation is highlighted with the Energy Pentilateral Forum and the North Seas Energy Cooperation initiatives. Nonetheless, compared to the draft NECP, France does not add more relevant information on cooperation with Portugal and Spain. France has no regional cooperation measures on carbon neutrality target. Cooperation with Italy on the finalisation of the NECP has also been very limited.

France **largely addressed** the recommendation to provide a list of energy subsidies and actions undertaken and **plans to phase out energy subsidies, in particular for fossil fuels**. A list of the main fossil fuel subsidies and tax expenditure considered harmful to the environment, is included. The final plan has reported on some measures already taken to cut fossil fuel subsidies in transport and on plans to reduce fossil fuel subsidies in the construction sector to be effective by 2022.

France **largely addressed** the recommendation to better integrate **just and fair transition aspects** and to further develop the approach to addressing **energy poverty** issues. France also assessed the social and employment impacts of their planned objectives and measures and provided data on the number of households in energy poverty and detailed data on the measures to address the issue.

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 2019¹¹, France received one country-specific recommendation¹² in relation to climate and energy, in particular to *'focus investment-related economic policy on [...] renewable energy, energy efficiency and interconnections with the rest of the Union [...]*. In the 2020 country report¹³ adopted on 20 February 2020, the Commission found that France achieved some 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 front-load mature public investment projects and promote private investment, including through relevant reforms, notably in the digital and green sectors. In this context, France received a country-specific recommendation¹⁴ stressing the importance of focusing investment on "the green and digital transition, in particular on sustainable transport, clean and efficient production and use of energy, energy and digital infrastructures as well as research and innovation".

The Governance Regulation provides that Member States should ensure that their national energy and climate plans (NECPs) take into consideration the latest country-specific recommendations issued in the context of the European Semester. France's NECP can support the implementation of the recommendations formulated in the context of the European Semester, in particular through its identification of necessary investments needs and financial sources to deliver 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

Besides the binding target for **non-ETS emissions of -37%** by 2030 compared to 2005 as set out in the Effort Sharing Regulation (ESR)¹⁵, **France** has set a national target for total **greenhouse gas emissions** of -40% by 2030 compared to 1990 (excluding LULUCF). This corresponds to -41.5 % compared to 2005.

In its national low-carbon strategy, France has set a target of carbon neutrality by 2050. Projections have been made until 2050, indicating the scale of emission reductions by sector that will be needed to reach the carbon-neutrality target. These projections guide the definition of the

¹¹ 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.

¹² Recommendation for a Council Recommendation on the 2019 National Reform Programme of France and delivering a Council opinion on the 2019 Stability Programme of France, COM(2019) 510 final.

¹³ Commission staff working document, Country Report France 2020, SWD/2020/509 final.

¹⁴ Recommendation for a Council Recommendation on the 2020 National Reform Programme of France and delivering a Council opinion on the 2020 Stability Programme of France, COM(2020) 510 final.

¹⁵ 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.

five-year carbon budgets adopted via Government decree. The total carbon budgets are also split into sectoral targets.

Based on the projections for sectors covered by the Effort Sharing Regulation (ESR), the Commission estimates that with existing measures, France would fall short of its 2030 non-ETS target by 11 percentage points. However, if France follows the trajectory set out to reach the carbon-neutrality target, it could overachieve its 2030 non-ETS target by 4 percentage points, assuming that the LULUCF sector creates no debits (the plan states that the expected trajectory of the LULUCF sector is such that the no-debit rule is likely to be achieved). Thus, there would be no need for France to use the flexibility from LULUCF to effort sharing sectors.

Whether France will be able to follow the planned trajectory, and therefore meet the non-ETS target, largely depends on the adoption and compliance with the carbon budgets proposed in the revised national low-carbon strategy. Furthermore, specific policies would need to be defined to deliver the emission reductions defined through the carbon budgets. The description of policies and measures in the NECP includes the main objectives and principles of the national low-carbon strategy, and details the existing and planned policies and measures. The planned cross-sectoral policies include a gradual increase of the carbon compound in the energy tax and the introduction of a tax on hydrofluorocarbons. However, due to intense social unrest, the carbon tax level has been frozen to 2018 levels, widening the gap with the planned trajectory. The description of planned policies could be further improved by indicating the expected impact of individual or groups of policies, in particular for those policies that are already under examination, and by presenting alternative scenarios

An interesting existing policy is the low-carbon label that improves greenhouse gas monitoring, reporting and checking across various sectors, and provides a basis for creating voluntary carbon offset schemes. France does not plan these offsets to be marketable.

A strong element of the NECP is that it identifies a broad range of actions in the **transport sector**. France has ambitious objectives for emission reductions (by 38 Mt CO₂eq by 2030 compared to 2015) and for increasing the share of renewable energy in the transport sector, including putting a progressive end to sales of GHG-emitting vehicles as of 2030. The plan mentions a 2019-2028 **clean mobility strategy** which was published in April 2020. The strategy includes supporting alternative mobility services, managing demand for mobility, supporting low-emission vehicles, including alternative fuel infrastructure and supporting a modal shift.

An impact assessment of the measures needed to achieve the carbon neutrality target is provided, including projections on deployment of alternative vehicles and efficiency gains. **Modal shift** towards alternatives to cars is expected to increase by 26 percentage points in 2050 as compared to 2015, with the aim of multiplying the modal share of cycling by four as of 2030, while equally investing in a strong increase of public transport's modal share. **Electromobility** is projected to increase substantially, with 35% of new vehicles in 2030 projected to be electric vehicles, as well as 10% plug-in hybrid electric vehicles, while aiming for 100% full-electromobility by 2040. Support to electromobility is envisaged through different measures including fiscal incentives, a 'bonus-malus' system and charging. Objectives for hydrogen and liquefied natural gas refuelling stations are set for 2028. However, those for recharging stations and electricity used in ports are only set until 2023. The aim of deploying alternative fuels in the waterborne and air transport sectors is also mentioned. For aviation, the objective is to gradually move from kerosene towards biofuels, with a projected market share of 50% by 2050. For maritime and inland waterways transport, France aims to entirely decarbonise domestic emissions by 2050 and by 50% for

international shipping. More information for all modes on how related policies would be further developed in the future are welcome.

Stricter regulations are planned for increasing the energy efficiency and improving the carbon footprint of new **buildings**, through the mainstreaming of the low-consumption label (*'Bâtiments de Basse Consommation'*), using renewable energy sources and life-cycle analysis of new constructions. Financial support is increased to support energy efficiency investments in existing buildings, with a view to achieving 370 000 major renovations per year until 2030. The decarbonisation strategy of the building stock relies heavily on the electrification of thermal usages, but its impacts on the electricity sector are not quantified.

On **agriculture**, the NECP stresses the importance of an agro-ecological approach, encompassing plant proteins, organic agriculture, livestock, fertilization, education and training. It identifies trajectories and the contribution of agriculture for the decarbonization. The plan refers to the 4X1000 initiative for increasing of soil organic carbon. As for **LULUCF**, the focus is on substituting fossil-based materials with bio-based ones, using the residues from these processes for bioenergy, promoting the use of harvested wood products, sequestering carbon in forest ecosystems, and halting carbon emissions from agricultural soils. The NECP raises the issue of the balance between production and consumption of agricultural and forest biomass for energy and mentions the impact of increased use of biomass on the carbon sink. It sets out several strategies and programmes to tackle them, notably the national forest and wood programme.

The plan also mentions the national adaptation strategy and actions for supporting forest adaptation to climate change as part of France's LULUCF-related policies. To implement Energy Union objectives, supportive adaptation measures are mentioned. These cover the coherence between adaptation and mitigation, support to outermost regions as well as norms and standards related to infrastructure and adaptation in buildings and construction.

France notified its long-term strategy to the Commission on 12 May 2020. France aims to become carbon neutral by 2050. This objective, enshrined into law, covers GHG emissions in all sectors of the economy and the natural sinks will compensate for the remaining emissions most difficult to abate. The long-term strategy addresses most 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 and the **renewable share** is set at 33% in gross final consumption of energy in 2030. This is considered sufficient as it is in line with the formula set out in Annex II of the Governance Regulation. However, the final plan does not mention which sector is contributing to achieve the 1% improvement compared to the draft NECP since sectoral shares are the same as the draft. The indicative trajectory for all reference points¹⁶ is not properly reflected.

On the **electricity** sector, France aims to cover a 40% share of its electricity consumption from renewable energy sources by 2030. This will be achieved by doubling the installed capacity of electric renewable energies in 2028 compared to 2017 with an installed capacity of 101 to 113 GW in 2028 and 36% of renewable energy in electricity production in 2028. Installed renewable energy capacity will be increased by 50% by 2023. In addition, three types of cross-cutting

¹⁶ Under Article 4(a)(2) of Regulation (EU) 2018/1999.

actions have been undertaken to promote the development of renewable electricity: (i) the reform of support mechanisms, (ii) administrative simplifications and (iii) the development of participatory financing.

For **heating and cooling**, a share of 38% of renewables is set for 2030. This corresponds to 1.2 percentage points of the annual average and is in line with indicative 1.1 percentage points as an annual average calculated for the periods 2021 to 2025 and 2026 to 2030 as provided under Article 23 of Directive 2018/2001¹⁷, provided that waste heat is not included in this target. The key policies and measures in the heating and cooling sector are (i) ensuring that the future environmental regulation on new buildings (RE 2020) leads to a minimum rate of renewable heat in all new buildings (individual, collective and tertiary), (ii) conducting collective campaigns to convince communities of more than 10 000 inhabitants to initiate heating and/or cooling networks projects, (iii) further strengthening the ‘Heat Fund’ to support heat production from renewable sources in industry, the tertiary sector and collective housing (e.g.: supporting heat production projects using geothermal energy assisted by heat pumps).

In the **transport** sector, France provides a target of 15% of final fuel consumption supplied by renewables, which is above the 14% target laid down in Article 25 of Directive 2018/2001¹⁸. However, it is not clear if the 15% is calculated applying the methodology set out in that Directive. The key policies and measures to achieve this are improving the energy efficiency of new road transport vehicles by:

- imposing emission standards on car manufacturers (cf. the European regulation setting a target of 95 g of CO₂/km for passenger cars in 2020);
- encouraging the development of low-emission vehicles (in particular through a purchase bonus for electric and plug-in hybrid vehicles, through the promotion of the deployment of charging infrastructures);
- addressing obstacles to the development of electric vehicles (cf. the lack of recharging infrastructures);
- promoting the development of biofuels and other alternative fuels (via fiscal measures);
- supporting modal shift (by improving the supply of transport services and infrastructures in alternative to road or by promoting measures to encourage cycling and active mobility).

France also aims to increase biomethane consumption to 7% of consumption of gas in 2030. France has also set itself an objective of 10 to 100 MW of electrolyser capacity and a share of decarbonised hydrogen in industrial hydrogen consumption of 20% to 40% by 2028.

Energy efficiency

France’s **national contribution for energy efficiency** in 2030 is 202.2 Mtoe for primary energy, as a projection and 120.9 Mtoe for final energy, translating the target of 20% reduction in final energy consumption compared to 2012. This target needs to be scaled up to achieve a 50% reduction in energy consumption in 2050 compared with 2012.

The plan provides detailed and comprehensive information on the **policies and measures** planned beyond 2020, which demonstrates the central role played by energy efficiency actions in the French decarbonisation strategy. The set of measures span across all sectors but target

¹⁷ 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.

¹⁸ 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.

particularly buildings and transport. These policies and measures represent a clear step up in comparison to current efforts, as new measures are set out and existing ones are strengthened. Overall, the measures are considered sufficient in relation to the achievement of the target, although only the impacts of the energy efficiency obligation scheme (EEOS) are clearly assessed. France presents the **cumulative savings** to be achieved under Article 7 of Energy Efficiency Directive¹⁹ with a cumulative amount of 65.2 Mtoe.²⁰ To achieve this goal, France relies entirely on a single and cross-cutting measure, which is the well established EEOS. Such a strategy is considered reliable as the EEOS has been extended to cover all end-use sectors (e.g. including agriculture), its monitoring and checking processes have been strengthened and overall, in the last years, it has always achieved its expected results.

A detailed annex describes the actions envisaged to ensure that the goal of renovating central government's buildings (Article 5 of the Energy Efficiency Directive) is achieved.

On **transport**, the plan mentions several actions contributing towards a more efficient organisation of the mobility system and therefore towards improved energy efficiency and emissions reductions. For example, demand management, incentivising multimodality and modal shift, supporting active modes and developing low-emission zones, increasing investments in rail and waterborne transport infrastructure, digitalisation and automation.

On energy efficiency in **buildings**, the NECP includes a number of specific actions on buildings, with a quantitative objective to renovate 370 000 residential buildings per year by 2030. The plan presents measures addressing '*passoires énergétiques*' (buildings with energy performance certificates F or G), public buildings and more generally a broad list of energy efficiency measures.

Financing mechanisms for building renovation are outlined; however they lack specific information and figures (e.g. m² of buildings, energy savings, energy savings/m², investments). Such information would allow a comprehensive evaluation of the ambition, effectiveness and feasibility of the measures, and how they link to the milestones and measurable progress indicators for the decarbonisation of the national building stock.

Energy security

France faces the challenge of simultaneously decreasing the share of nuclear energy and phasing out coal power plants. France's approach to ensure security of supply is to i) manage energy demand, ii) generate energy locally, mainly with renewables, and iii) diversify supplies. Policies and measures include reducing electricity peak demand and secure biomass supply.

France's security of supply is based on the following two pillars: first diversifying the means of generating electricity or the means of supplying gas and oil that are not produced within the country, and second protecting imports across all sectors by strengthening infrastructures.

The main objectives on the security of energy supply are set out as follows: (i) confirming the criteria that apply to the supply of gas and electricity, (ii) accelerating the reduction in peak electricity demand, (iii) mobilising biomass resources while striking an appropriate balance

¹⁹ 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.

²⁰ The energy savings goal was updated by the French authorities from the original value of 62,8 Mtoe after the publication of the NECPs, following some technical clarifications.

between biomass uses and food-production uses, and working towards the goal of sustainable soil quality.

Maintaining a high level of security of supply is a priority in the ongoing transformation of the energy system, with an objective of 40% renewable **electricity** system and increasing share of domestic renewable energy to 33% by 2030. On security of supply for gas, France bases its strategy on maintaining the current gas stock capacities, with possible reductions in the future, and the development of flexible demand (at least 200 GWh/d of interruptible capacities by 2023). The plan mentions cybersecurity and does not include any objective or specific measure for it.

The final plan assesses the reduction of energy dependency and security of supply by maintaining a high share of nuclear energy in the national energy mix. France aims at increasing diversification through renewable sources to cope with future crisis or technical issues. Several scenarios for 2030 and 2050 are envisaged. A clear strategy to guarantee the security of uranium supply is established combining geographical and commercial diversification, long-term contractual security and stock management.

Internal energy market

France sets the objective of an additional 10 GW of interconnections by 2030, for a total capacity of 26 GW, corresponding to an **interconnectivity level** of approximately 16.5% for 2030, which is above the target set at EU level. The plan lists current projects of common interest, which will increase interconnectivity. This includes the Celtic Interconnector, which will directly connect Ireland to the EU's Internal Energy Market following the UK's withdrawal from the European Union. An analysis of how rising electricity demand affects the level of electricity interconnectivity and the need for infrastructure is not included²¹.

The plan provides for the development of interconnections with Spain, Italy, the UK and Ireland and studies for reinforcing interconnections with Germany, Switzerland and Belgium. France also plans to accompany decentralisation of generation, increase flexibility and smartness of networks, and prepare for smart sector integration, notably between electricity, gas and heat sectors.

Given the electricity sector target of 40% renewable electricity in 2030, an overview of the development of the different sources of **flexibility** that is needed to integrate the rising share of renewable energy into the electricity system is provided.

The final plan includes further policy objectives and measures related to the internal energy market such as measures to ensure the non-discriminatory participation of new market entrants and the different flexibility sources in all energy markets. For example, measures are listed in support of demand response, storage and fostering the role of consumers and energy communities. On the recommendation to set objectives and move towards market-based prices, France reports on the Energy law passed in September 2019 where gas retail price regulation will be removed by 2023 and the scope of electricity price regulation will be limited to households and microenterprises, in line with the Electricity Directive. The role of aggregator and demand response is slightly expanded. The target for 'photovoltaic sites for self-consumption' is doubled for 2023 compared with the draft NECP.

²¹ However, the NECP refers to prospective studies by RTE (the French TSO) which do include such analysis.

As competitive markets are a key enabler for other dimensions of the Energy Union, objectives related to the further development of wholesale and retail market competition and corresponding measures and timelines would have deserved being included in the final plan. On **energy poverty**, the final plan mentions numbers of households in energy poverty as per the indicators used by the National Energy Poverty Observatory and refers to a very wide range of measures in relation to accommodation, transport, demand response, already deployed, to reduce energy poverty where France is also intent on further strengthening them.

Research, innovation and competitiveness

The plan identifies relevant areas where **research and innovation** efforts lie. On national objectives and funding targets on specifically energy for R&I, France refers to their national policies and makes specific reference to the ongoing funding targets but without mentioning specific goals and timelines for each sectors (only needs are identified).

France included a number of policies, plans and roadmaps which include an R&I aspect – such as the climate plan, the national energy research strategy integrating the 2050 and 2028 roadmaps with sections on innovation, and the hydrogen deployment plan. On funding targets, France refers to its 2018 R&D expenditures and recalls that the trend over recent years has been to increase the funding of public research in new energy technologies. As for the ongoing funding in this field, the investments for the future programme currently has an allocated total budget of around EUR 450 million within eight renewable energies. Among other initiatives, an Innovation Fund worth EUR 10 billion was created by the French government, generating EUR 250 million per year which are used to promote the emergence of breakthrough innovations and their mass production in France. Due to a lack of quantified national objectives and quantified targets, the plans assessment of these policies and measures is impossible to evaluate.

France aims to promote and improve research and innovation in the energy sector, particularly in geothermal energy, fission and fusion, hydrogen, batteries, offshore wind and second-generation solar PVs, which would also improve French competitiveness.

According to its final energy and climate plan, France considers this decade as a preparation period for a massive deployment of the clean hydrogen as of 2030, which is in line with the gradual development of the EU hydrogen economy foreseen by the Commission in its Hydrogen Strategy adopted in July 2020²². France will first focus on decarbonising existing industrial uses of hydrogen, like in the refinery, iron and steel, ammonia, plastics and glass sectors. The plan confirms the intention to develop research and demonstration project on hydrogen and underlines France's commitment to fuel cell vehicles as well as refuelling stations by 2028.

On **competitiveness**, France highlights the need to ensure that R&I activities for the energy transition lead to technologies and behaviours that will reduce emissions, while also placing France in a competitive position on the respective markets. Specific research and innovation needs are identified for the decarbonisation of energy, energy efficiency, energy storage, smart management of transmission and distribution networks, as well as carbon capture, storage and reuse solutions. In response to these needs, the French government aims to continue and step up support for R&D and innovation for the energy transition, including confirming its commitments under 'mission innovation,' strengthen French participation in major international research

²² "A hydrogen strategy for a climate-neutral Europe". COM (2020) 301 final.

programmes, and develop new training courses for jobs in the energy transition. French national policies are consistent with the goals of promoting innovation and financing in R&D and addressing needs beyond the strict energy sector for the economy at large. However, specific and measurable objectives and targets on competitiveness are still missing. Regarding specific data, no reference is made to private R&I spending. However, information on patents is included under Section 2.5, but not at the level of low-carbon energy technologies and qualitative information on researchers is included. The law on multiannual research planning was being debated within the French parliament at the time that the final plan was being drafted. Following adoption, the law should enter into force in 2020. The law addresses one of the three main challenges for R&I that is to say increasing the funding capacity for research projects, programmes and laboratories.

The final plan mentions the French involvement and active role in participating in all the activities carried out under the **strategic energy technology (SET) plan**. France highlights also its role in coordinating several working groups including the one responsible for drafting the battery action plans. To achieve the objectives set out in the action plans and approved under the SET Plan, France proposes to develop and to continue joint research projects with other countries involved in the SET plan through its 'investment for the future' funding programme.

4. COHERENCE, POLICY INTERACTIONS AND INVESTMENTS

The final plan includes a general overview of the **investments needed** to reach 2030 and 2050 targets in the energy, transport, buildings as well as agriculture sectors. The plan also includes information on the investments needed by sector and technology type. There is however a need to clarify in the final plan that the investments needs reported are additional to a business as usual scenario that does not achieve the climate and energy objectives as introduced in the plan. The source of funding is not systematically indicated with the corresponding amounts and is mostly focused on the national support (EU or private funds are not detailed). Potential mobilisation of private investments could be further addressed, particularly in research, innovation and competitiveness. There is no mention of using financial instruments in energy efficiency. On cohesion policy, the plan includes no information on how cohesion policy funds are or could be used. Overseas investments are not described. The energy and climate plan only presents a national approach and does not go into regional considerations such as local disparities, regional statistical data in on greenhouse gas emissions, energy efficiency, renewable energy, fossil fuels consumption and links between existing regional plans.

A quantitative list of existing **energy subsidies**, in particular tax expenditure for fossil fuels is presented according to internationally used definitions (OECD). A specific timeline to phase out energy subsidies has been mentioned for reducing diesel subsidies used for purposes other than road traffic, in particular for the construction sector.

The final plan assesses the impacts on **air pollution and quality** quantitatively. Air quality impacts have been analysed, in particular on the use of biomass and alternative fuels (biogas). A quantitative assessment for air pollutant emissions has been provided. The national air pollution control programme (NAPCP) reproduces the country's 2017 air strategy without updating it and its links with the plan are not mentioned. Further information on the links with air quality and air emissions policy, including synergies and trade-off effects would be welcome.

The final plan presents some adaptation measures consistent with the other dimensions of the Energy Union, but the plan could have included more information on how climate change risks might affect energy supply (e.g. wildfires and storms destroying power networks, availability of hydropower).

On the **just and fair transition** aspects, France produced a detailed assessment of the social and employment impacts of their planned objectives and measures. Social impacts on households of proposed measures are well developed, particularly for measures related to mobility and residential housing with a focus on energy poverty. However, the question of accessibility in the context of the design and implementation of energy efficiency oriented renovations measures is not developed. Moreover, when identifying evidence-based estimate of expected energy savings and wider benefits, such as those related to health, safety and air quality, the plan does not consider accessibility for persons with disabilities. The plan mentions skills and training, but it would benefit from providing more details on these aspects. In relation to energy poverty, the targeted sectors and areas in need of support are well identified. The NECP puts special emphasis on energy poverty and provides consistent information on policies and allocated resources.

There is no reference to the Just Transition Mechanism and the funding opportunities under the European Fund for Regional Development.

Biodiversity is fully integrated in the analysis, which provides also specific examples of practices to strengthen links and avoid trade-offs. The plan also refers to areas of untapped potential, like the production of biogas from waste and residues and emphasises sustainable forest management.

The final plan **strongly integrates the circular economy**, in line with the 2018 circular economy roadmap and the 2020 Circular Economy Law (*‘Loi contre le gaspillage et l’économie circulaire’*). Relevant legislation, in areas such as the energy efficiency of buildings also includes the efficiency of materials, which is an example of good practice. However, further quantification efforts on the impact of the circular economy on GHG emissions reductions would be welcome, in line with the most recent scientific evidence.

The plan outlines detailed estimates of the trajectories on **bioenergy demand and on biomass supply** by feedstock and origin and an assessment of its forest biomass sources and its impact on the LULUCF sink. France projects a 40% increase (up to 251TWh) of biomass and bioenergy supply by 2028 compared with 2016. This is equally driven by the mobilisation of solid biomass and development of biofuels of agricultural origin.

The plan clearly shows that energy efficiency policies are prominent in the national efforts towards decarbonisation. However, there does not seem to be a specific approach to apply the **energy efficiency first principle** across the all national energy policies.

Overall, the final energy and climate plan is well developed and broadly consistent across the different dimensions. It has a robust analytical basis, but the impact assessment of policies and measures is not fully developed, and their links with projected resources and results are not thoroughly quantified.

The plan does not refer to the **clean energy for EU islands initiative**, to which France is a signatory (i.e. political declaration).

The final plan partially addresses the data transparency recommendation; however, the recommendation on using European statistics is not addressed.

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

France needs to swiftly proceed with implementing its final integrated national energy and climate plan, notified to the Commission on 17 April 2020. This section provides some guidance to France 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 France could consider when developing its national recovery and resilience plan in the context of the Recovery and Resilience Facility²³.

Guidance on the implementation of the national energy and climate plan

France has set a national target for total **greenhouse gas emissions** of -40% by 2030 compared to 1990 (excluding LULUCF), which corresponds to -41.5% compared to 2005. Its target for non-ETS sectors is established by the Effort Sharing Regulation (ESR) at -37% by 2030 compared to 2005. With existing measures, the Commission estimates that France would fall short by 11 percentage points in 2030. At the same time, the plan sets out a trajectory to reach the national long-term objective to reach net carbon neutrality by 2050. If the trajectory is followed, France could overachieve its non-ETS 2030 target by 4 percentage points. However, this requires the swift implementation of the measures set out in the plan.

The French contribution to the **EU 2030 renewables target** is adequate when compared to the share resulting from the formula in Annex II of the Governance Regulation, whereas the French contributions to the **2030 energy efficiency targets** are of modest and sufficient ambition for primary and final energy consumption, respectively. However, France's plan still 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 to strengthen the green transition.

On **renewables**, France committed to increase the share of renewables in gross final energy consumption to 33% in 2030. France is invited to clarify whether and how it intends to meet its 23% target for 2020, and to explore the use of cooperation mechanisms and of the Union renewable energy financing mechanism to reach that target and maintain it beyond 2020. France is also invited to intensify its efforts to facilitate administrative procedures for new renewable projects and for repowering, as well as to increase the local acceptance of renewable energy projects, including through renewable energy communities and other participatory financing schemes.

On **energy efficiency**, a swift implementation of the main instruments and policy measures identified would help avoid delays that could put at risk the estimated energy savings and the achievement of the overall objectives. France is also invited to ensure that the energy efficiency

²³ 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. The guidance is 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).

first principle is applied in a structured manner in the implementation of the national energy strategy. In particular, measures to moderate energy demand could be viable alternatives to possible increase in generation and interconnection capacities in the context of the phase out of households use of coal and oil.

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** initiative²⁴, there is scope for France 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. France submitted the long-term renovation strategy under Article 2a of the Energy Performance of Buildings Directive 2010/31/EU on 2 June 2020, which provides detailed information on a number of specific actions on buildings, including the renovation of residential buildings and a progressive phasing-out of (*passoires thermiques*) from the market.

As regards **energy poverty**, France 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 cooperatives, buying energy-saving appliances for social enterprises to rent out).

To achieve a high level of **security of energy supply**, France is encouraged to leverage well-established strategies in terms of diversification of energy suppliers and energy sources as well as reducing and flexibilisation of energy demand.

On the **internal energy market**, France's progression towards market-based prices and a competitive retail market still require more effort. In particular, both the electricity retail and wholesale markets still show low levels of competition. France is strongly encouraged to undertake the proper actions and reforms to decrease market concentration.

On **research and innovation**, an effective implementation of the plan will enable France to swiftly move forward in improving its research and innovation base and competitiveness. Quantitative information to underpin the respective objectives and investment targets as well as specific timelines and dedicated funding mechanisms would allow France to reach its level of ambition in research and innovation.

The estimated annual sum of (public/private and public) **investments** for 2019-2032 is between EUR 45-85 billion of additional investments (corresponding to 1.9-3.6% of GDP in 2018, compared to a scenario without energy transition objectives). This includes EUR 15-25 billion for buildings, EUR 20-50 billion for transport and EUR 10 billion for energy and electricity grids. The plan outlines the detailed investments needed per sector and technology type, but funding sources are not consistently indicated with specific amounts and the types of instrument. Further

²⁴ Communication 'A Renovation Wave for Europe – greening our buildings, creating jobs, improving lives', COM(2020)662 and SWD(2020)550.

information on leverage would help to estimate the potential mobilisation of EU funding and private investments, particularly in research, innovation and competitiveness.

On **regional cooperation**, France has been rather pro-active, notably through the Pentalateral cooperation and the High-Level Groups for South West Europe and North Seas Energy Cooperation. France is invited to continue ongoing efforts to facilitate the implementation of its plan, in particular on relevant cross-border issues. Participating in High-Level Groups for TEN-E such as for South West Europe and North Seas Energy Cooperation would enable France to continue developing interconnections in the future, as well as deploying offshore wind projects²⁵.

France is invited to extend and update the identification and reporting on **energy subsidies** and intensify action to phase them out, in particular for fossil fuels. A rapid phase out of the fossil fuel subsidies identified in the NECP and recent Commission analyses, through the further development and implementation of concrete plans with associated timelines (coupled with measures to mitigate the risk of households' energy poverty), would further boost the green transition.

For all investments implementing the national energy and climate plan, France 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, France 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. An overview of EU funding sources which should be available to France during the forthcoming multiannual financing period (2021-2027), and EU funding addressed to all Member States and companies, is provided in tables 1 and 2 of annex I. 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 the EU level, funding will be available for France from the Innovation Fund too, based on revenues from the auctioning of allowances under the EU Emissions Trading System, as well.

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 France's plan in that context. Nevertheless, the implementation of the final integrated national energy and climate plan of France 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 France to design climate and**

²⁵ 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.

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**²⁶. In particular, the 'Power up', 'Renovate' and 'Recharge and refuel' flagships are directly related to energy and climate action and to the final national energy and climate plans. Investments and measures under the 'Reskill and upskill' flagship, in particular as regards green technologies, 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 green transition of France 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 recovery and resilience plan of France 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 France's final national energy and climate plan, and on the investment and reform priorities identified for France in the European Semester, **the Commission services invite France to consider, while developing its national recovery and resilience plan, the following climate and energy-related investment and reform measures**:

- Measures, including reforms, to increase the energy efficiency of buildings (including social housing);
- Measures to promote renewable energy, in particular by simplifying administrative procedures to support investment; measures aimed at strengthening and expanding the transmission and distribution lines, including electricity interconnections with neighbouring countries; a review of economic incentives to support the energy transition;
- Measures to promote sustainable mobility by accelerating the electrification of transport and the use of alternative fuels including hydrogen; measures to invest in green mobility infrastructures.

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 prejudice 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.

²⁶ Cf. Annual Sustainable Growth Strategy 2021 (COM(2020) 575 final), pp. 9-12.

ANNEX I: POTENTIAL FUNDING FROM EU SOURCES TO FRANCE, 2021-2027

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

Programme	Amount	Comments
Cohesion policy funds (ERDF, ESF+, Cohesion Fund)	16.8	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.	61.5	In current prices.
Recovery and Resilience Facility	37.4	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	0.9	In 2018 prices. Commitments both under the multi-annual financial framework (MFF) and Next Generation EU.
ETS auction revenue	0.8	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	Increase the level of ambition for 2030 to a renewable share of at least 33% as France's contribution to the Union's 2030 target for renewable energy, as indicated by the formula in Annex II of Regulation (EU) 2018/1999.	Fully addressed	The level of ambition for 2030 increased to at least 33%.
	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.	Not addressed	The reference year 2022, 2025 and 2027 are not presented in the final NECP; only years 2023 and 2028 are covered.
	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 (8), to enable a timely and cost-effective achievement of this contribution.	Largely addressed	Many policies and measures are quite detailed for the three sectors ((i) electricity, (ii) heating and (iii) cooling and transport) but are not fully quantified. On cost-effective achievements in the electricity sector, a whole section has been added in which the cost of renewables support is assessed up to the horizon of 2028, per technology.
	Ensure that the renewable energy target for 2020 set in Annex I of Directive 2009/28/EC of the European Parliament and of the Council (9) is fully met and maintained as a baseline from 2021 onwards and explain how it intends to meet and maintain such baseline share.	Not addressed	The plan does not include data on the achievement of the 2020 target or projections. (Only 2023 projected renewables level is higher than 2020 target level.)
	Reconcile the objectives put forward in its draft integrated national energy and climate plan for the share of renewable energy in the heating and cooling sector and in the transport sector with the indicative target included in Article 23 of Directive (EU) 2018/2001 and the transport target in Article	Partially addressed	The final NECP includes an average increase of 1.2 pp., but it is not clear whether waste heat is included in this objective. The objectives are reconciled for 2030 transport target; however it is not fully clear if the calculation follows the methodology of Directive 2018/2001.

	25 of Directive (EU) 2018/2001, respectively.		
Energy efficiency	Review the efforts on reducing primary energy consumption to contribute to reaching the collective Union's 2030 energy efficient target. France's contribution is of sufficient ambition for final energy consumption.	Partially addressed	On primary energy consumption, the contribution remains broadly the same. The ambition level was slightly increased for final energy consumption.
	Include details on the expected impacts of the planned policies and measures in the final integrated national energy and climate plan, to make sure that their scale of implementation would be sufficient to deliver the necessary reductions of energy consumption.	Largely addressed	More information was provided on the national measures, but their expected impacts are not fully quantified. The information provided on the renovation of the building is improved.
Energy security	Specify the measures supporting the energy security objectives on diversification and reduction of energy dependency, including measures ensuring flexibility, as well as information on planned nuclear generation capacity.	Not addressed	No new elements added compared to the draft NECP. The plan assesses the reduction of energy dependency and security of supply by maintaining a high quota of nuclear energy in their mix. Increased diversification by renewable sources to cope with future crisis or technical issues. Several scenarios envisaged for 2030 and 2050, depending on variable outcomes. Security of energy supply is based on the diversification of import sources, reducing import dependency by increasing renewable energy. A clear strategy to guarantee the security of uranium supply is established combining geographical and commercial diversification, long-term contractual security and stock management.
Internal energy market	Define forward-looking objectives and targets concerning market integration, in particular measures to develop more competitive wholesale markets, including progressing towards fully market-based prices.	Partially addressed	France reports on the phasing-out of regulated retail prices for the supply of gas and on the reduction of the scope of the beneficiaries of the regulated prices for the supply of electricity as per the recast Electricity Directive. However, the NECP fails to report on measures to develop more competitive wholesale markets, in particular on electricity.
Research innovation and competitiveness	Further quantify the 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 final integrated national energy and climate.	Partially addressed	The NECP identifies objectives and broad areas of R&I actions (in energy, climate and mobility) but without specific timeline nor quantified targets. For some of the objectives support policies or measures beyond 2020 are presented, but for most of them neither timeline nor dedicated funding mechanisms are presented for the period beyond 2020. As regards competitiveness, there are no specific

			and measurable objectives.
	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	<p>Many policies and measures have been proposed, however there is a lack of quantified objectives and targets.</p> <p>The cooperation with the strategic energy technology (SET) plan is clearly and extensively addressed within the various Implementation Plans as well as its level of ambition of national objectives regarding competitiveness; its priorities interlinked with national priorities, but it is not clear how these will be implemented.</p> <p>Overall, France showed efforts to propose policies and measures in the fifth dimension of the Energy Union. However, there is still a lack of quantified national objectives and quantified targets, which make the adequacy assessment of their policies and measures impossible. Quantified objectives which are missing should be linked to specific and adequate policies and measures which are mentioned.</p>
Investments and funding sources	No recommendation.	n.a.	-
Regional cooperation	Intensify the existing good regional cooperation with Spain, Portugal and the Pentalateral countries (10). The focus of the regional exchanges should be on internal energy market and energy security areas.	Fully addressed	The following specific prospective works are described: hydrogen cooperation; security of supply, decarbonised electricity system in 2050, cross-border cooperation on renewable electricity, mobility services without regional restrictions, the clean energy package working on specific regional measures for crisis situations.
	Continue the cooperation with Portugal and Spain, in particular on cross-border and cross regional energy interconnections.	Not addressed	France does not add more relevant information on the cooperation with Portugal and Spain. Ongoing interconnection projects are well reflected.
	Consider strengthening measures related to regional cooperation in the area of renewable energy.	Fully addressed	The final plan focuses on renewable electricity initiatives as follows: (i) with Penta-countries: cross-borders tenders, joint projects and statistical transfers ('cluster menu'), (ii) with NSEC countries: framework for supporting and financing offshore wind projects, analysis and development of options to mobilise more capital for joint projects, for example through European funds such as the European Fund for Strategic Investments (EFSI) and Connecting Europe

			Facility.
	Consider also intensifying regional cooperation arrangements to new areas such as regional generation capacity assessment and research and innovation on technologies of common interest with other Member States.	Fully addressed	Regional cooperation arrangements are addressed as follows : (i) with Penta-countries: study of carbon pricing options and their cross-border impact on electricity prices, development of financing tools for the energy transition with the EIB, (ii) with NSEC countries: creation of four support groups working on Maritime spatial planning and environmental impact assessment / Development and regulation of offshore networks and other offshore infrastructure / Mechanisms for supporting and financing offshore wind projects / Technical standards and rules in the offshore wind sector.
Energy subsidies	List all energy subsidies.	Largely addressed	On the list of energy subsidies, the final NECP represents a meaningful upgrade of the draft plan. France has included information regarding subsidy schemes concerning renewable energy and energy efficiency.
	List in particular fossil fuel subsidies.	Largely addressed	The final version of the plan includes a table of tax expenditure on reduced rates of taxation for fossil fuels.
	List actions and plans to phase out energy subsidies, in particular for fossil fuels.	Partially addressed	In relation to actions and plans to phase out, the final NECP states that some tax reductions in the form of indirect fossil fuel subsidies have been cut and additional measures have been taken to phase out these reductions.
Air quality	No recommendation.	n.a.	

Just transition and energy poverty	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.	Partially addressed	France has taken into account the just transition recommendation by producing a detailed assessment of the social and employment impacts of their planned objectives and measures. Social impacts on households of proposed measures are well developed, especially in measures related to mobility and residential housing with a focus on energy poverty. However, it would also be relevant to provide a distributional impact assessment on households' income (including impact on housing costs), notably in rural areas, of the planned transition measures. Skills adaptation and necessity of professional training is mentioned but not overly developed, with a focus on Research and Development skills needs and knowledge basis. France focuses on competence side through the Investment Plan for Skills. The idea is to regularly adapt students, workers or jobseekers competences to the energy transition. This initiative does not fully cover social and employment sides.
	Further develop the approach to addressing energy poverty issues, including by providing an assessment of the number and type of households in energy poverty to allow assessing the possible need for an indicative objective for reducing energy poverty as required by the Regulation (EU) 2018/1999.	Fully addressed	The targeted sectors and areas in need of support are well identified. The NECP puts special emphasis on energy poverty and provides consistent information on policies and allocated resources. The National Observatory on Energy Poverty monitors two indicators based on (i) the rate of energy effort, and (ii) on the impression of the cold. These two indicators allow targeting measures in housing and mobility to those most in need.