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**COMMISSION STAFF WORKING DOCUMENT**

**Assessment of the final national energy and climate plan of Slovenia**

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## 1. SUMMARY

Slovenia's<sup>1</sup> final integrated national energy and climate plan sets a 2030 **greenhouse gas emission target** for sectors outside the EU emissions trading system (**non-ETS**) of -20% compared to 2005. This is more ambitious than the target under the Effort Sharing Regulation (ESR)<sup>2</sup> of -15% below 2005 levels by 2030. It is underpinned by indicative sectoral targets varying between -70% for buildings and an expected 12 % increase for the transport sector between 2005 and 2030. However, additional policies and measures to reach the target and meet the no-debit commitment (i.e. accounted emissions do not exceed accounted removals) of the land use, land-use change and forestry (LULUCF)<sup>3</sup> Regulation have not been quantified, nor have considerations of a cost-efficient generation of possible transfers to other Member States. The analytical basis describes the current situation with existing measures.

Slovenia's national contribution to the 2030 EU-wide **renewable energy** target is 27% of gross final energy consumption. This is considered to be low in ambition as it is below the 37% target calculated based on the formula in Annex II of the Governance Regulation<sup>4</sup>.

Slovenia's national contribution to the 2030 EU-wide **energy efficiency** target is of modest ambition<sup>5</sup> for primary energy consumption, amounting to 6.4 Mtoe, and of low ambition for final energy consumption, amounting to 4.7 Mtoe. The final national energy and climate plan includes substantial information on buildings, including a target to reduce final energy consumption by 20% by 2030 compared to 2005. Slovenia has not yet submitted its long-term renovation strategy.

In its plan, Slovenia sets **energy security** objectives, specifically to produce at least 75% of its electricity supply from national sources by 2030, and to maintain or improve the present reliability level of its electricity supply.

As regards the **internal energy market**, Slovenia aims to improve the electricity distribution network's resilience to disruptions by increasing the share of the underground medium voltage network from the current 35% to at least 50%. Furthermore, it intends to support the implementation of pilot projects on the production of synthetic methane and hydrogen, suggesting an indicative objective of a 10% share of methane or hydrogen from renewable sources in the transmission and distribution network by 2030. Slovenia has already overachieved the interconnectivity goal of 15% by 2030, with a level of 83.6% in 2017.

National objectives and funding targets related to overall **research, innovation and competitiveness**, including clean energy technologies and innovation projects, amount to at least

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<sup>1</sup> 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.

<sup>2</sup> 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.

<sup>3</sup> Regulation (EU) 2018/841 of the European Parliament and of the Council of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework, and amending Regulation (EU) No 525/2013 and Decision No 529/2013/EU.

<sup>4</sup> 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.

<sup>5</sup> In accordance with the methodology as illustrated in the SWD(2019) 212 final.

3% of GDP by 2020 (of which 1% of GDP from public funds) and 3.6% of GDP by 2030 (of which 1.6% of GDP from public funds).

For the implementation of the measures included in the national energy and climate plan, estimated **overall energy related investment** from 2021 to 2030 amounts to EUR 12.6 billion. This is approximately 22% or almost EUR 4 billion higher than energy related investment under the scenario with existing measures. When the non-energy component (including investments in new buildings), transport infrastructure and sustainable mobility are also considered, the necessary total investment amounts to EUR 28 billion. The planned investment is envisaged to require private funding to the extent possible. The funding gap is expected to be closed through the use of available EU and national funds and financial instruments. The national energy and climate plan does not contain a concrete financial plan which would set out which sources of funding would cover which investments.

Slovenia's final national energy and climate plan contains very few references to **air quality**. This makes it impossible to correctly assess whether air pollution measures will be sufficient, in particular in light of the expected use of biomass in the heating sector.

The plan provides information on the overall amount of **energy subsidies**, which is in line with the subsidies identified in recent Commission analyses in this area. Based on this information, it appears that, among the subsidies not in line with the objective of reducing greenhouse gas emissions, the most problematic is the reimbursement of excise duties on diesel fuel used for commercial purposes. Although the plan includes a long-term objective to significantly reduce fossil fuel subsidies, it fails to provide any timelines, figures or numerical objectives.




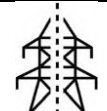
The final plan takes into account **just and fair transition aspects** and provides information on expected social, employment and skills impacts of the transition to a climate neutral economy, such as the implications of energy and climate policies on different macroeconomic indicators linked to employment. However, the plan does not address the implications in the coal regions, which will be the most affected by the transition, but only tackles the national level implications and, overall, is very general and rather descriptive. Slovenia plans to put forward a strategy for coal phase-out and the restructuring of coal mining areas by 2021, in line with the principle of just transition.

On **energy poverty**, the plan neither reports on the number of households affected nor includes specific and measurable objectives to be reached, but includes a timetable by which Slovenia intends to introduce a legal definition of energy poverty and establish a monitoring framework with indicators and targets. The final plan describes measures to reduce energy poverty or safeguard the population at risk, such as social and housing policies. It does also include an intention to introduce a new carbon/environmental tax to combat energy poverty through financial measures that aim mainly to support lower income groups.

The following table presents an overview of Slovenia's objectives, targets and contributions under the Governance Regulation<sup>6</sup>:

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<sup>6</sup> 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

	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) (%)	-7%	4%	-15%	More ambitious national target of -20%
	National target/contribution for renewable energy: Share of energy from renewable sources in gross final consumption of energy (%)	21.1% in 2018	25%	27%	Unambitious (37% is the result of RES formula)
	National contribution for energy efficiency: Primary energy consumption (Mtoe) Final energy consumption (Mtoe)	6810 ktoe 4975 ktoe	7.1 5.1	6.4 4.7	Modest Low
	Level of electricity interconnectivity (%)	83.6%	No specific target	No specific target	N.A.

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

## 2. FINALISATION OF THE PLAN AND CONSIDERATION OF COMMISSION RECOMMENDATIONS

### Preparation and submission of the final plan

Slovenia **notified** its final national energy and climate plan to the European Commission on 28 February 2020.

A **public consultation** on the plan was launched on 17 January 2020 and ended on 16 February 2020. Slovenia has not submitted a summary of the public's views and of how those views have been taken into account in its final plan. However, all comments received and suggestions made in the framework of the public consultation on the final plan and the environmental report relating to it are available online<sup>7</sup>. The Parliament was consulted on the plan, but the results of the parliamentary consultation are not included in the final text. Finally, Slovenia carried out a comprehensive environmental impact assessment<sup>8</sup> in accordance with Slovenian law.

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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.

<sup>7</sup> <https://www.energetikaportal.si/dokumenti/strateski-razvojni-dokumenti/nacionalni-energetski-in-podnebni-nacrt/dogodki-zakljucnoposvetovanje/pripombe-jo/>.

<sup>8</sup> <https://www.energetika-portal.si/dokumenti/strateski-razvojni-dokumenti/nacionalni-energetski-in-podnebninacrt/cpvo/>

## Consideration of Commission recommendations

In June 2019, the Commission issued eleven recommendations on Slovenia's draft national energy and climate plan, for consideration in the final plan<sup>9</sup>. Annex II to this staff working document presents a detailed assessment of how these recommendations have been reflected in the final plan. Overall, the final plan **partially addresses** most of the recommendations. The main changes introduced in the final plan are the following:

On **greenhouse gas emissions in non-ETS sectors**, Slovenia **partially addressed** the recommendation to specify cost-efficient additional policies and measures, notably for buildings. In particular, Slovenia provides some additional policies for the building sector, including a ban of oil heating systems in new buildings as from 2023. However, it fails to provide any information on the cost-efficiency of these measures.

On **renewables**, Slovenia **partially addressed** the recommendation to raise its ambition and to improve policies and measures related to renewables. The target share of energy from renewable sources in gross final energy consumption set in the final plan remains well below the figure provided in Annex II of the Governance Regulation. However, all sectoral estimated trajectories are now included and the list of policies and measures is more detailed compared to the draft plan.

On **energy efficiency**, Slovenia **partially addressed** the recommendation to update and scale up energy efficiency policies and measures. In particular, the new target is more ambitious compared to the draft plan. The list of policies and measures is also more detailed. However, the final plan largely fails to indicate their impact in terms of expected energy savings and it lacks a timeline for implementation, as recommended by the Commission. Slovenia has not yet provided all elements required by Annex III of the Governance Regulation regarding the energy savings obligation post-2020. On buildings, the information in the national energy and climate plan is substantial. The long-term renovation strategy has not been submitted yet.

On **energy security**, Slovenia **largely addressed** the recommendation to specify the measures supporting the energy security objectives, including measures ensuring flexibility. In particular, the final plan provides some detail on energy dependency as regards solid fossil fuels. On the role of gas, Slovenia included relevant indicators in its final plan.

On the **internal energy market**, Slovenia **did not address** the recommendation to set clear objectives, milestones and timelines, as well as measures to develop more competitive wholesale and retail markets. The final plan does not provide any information about the gas market and information on the electricity market is very weak.

On **research, innovation and competitiveness**, Slovenia **partially addressed** the recommendation to clarify the national objectives and funding targets. In particular, Slovenia has now included a numerical target and listed existing policies and measures. However, these are not accompanied by quantified targets, nor are they supported by policies or measures in the area of energy and climate research and innovation. Timelines for achieving the targets are not quantified either. As regards competitiveness, objectives are not specifically and coherently addressed

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<sup>9</sup> Commission Recommendation of 18 June 2019 on the draft integrated national energy and climate plan of Slovenia covering the period 2021-2030, C/2019/4424.

throughout the plan. Likewise, cooperation, as set out in the European Strategic Energy Technology (SET) Plan, is only mentioned very broadly.

Slovenia **partially addressed** the recommendation to reinforce **regional cooperation**. In particular, several actions have been undertaken to reinforce regional dialogues, especially consultations across the Adriatic, including an ad-hoc meeting with neighbouring countries (Austria, Croatia, Hungary and Italy). However, the final plan largely fails to follow up with specific initiatives and deliverables and would benefit from exploring further the cross-border potential of integrated energy policy and assessing the macro-regional aspect of the energy policies.

On **investment needs**, mechanisms and funding sources, Slovenia **partially addressed** the recommendation to provide a general overview of the investment needed to reach its energy and climate objectives. In particular, Slovenia has now qualified the investment needs in its final plan. However, it is not clear how public and private funds will be mobilised, which sources of funding would cover which investments, and what is relative timeline.

On **energy subsidies**, Slovenia **partially addressed** the recommendation to provide a list of all energy subsidies and actions undertaken and plans to phase them out, in particular for fossil fuels. Although overall figures on fossil fuels, renewable energy and combined heat and power subsidies have been included in the final plan, information on actions and plans to phase out fossil fuel subsidies is lacking.

Slovenia has **not addressed** the recommendation to consider **air quality**. In particular, Slovenia indicates that implementing the national energy and climate plan may have a negative impact on air quality. On the other hand, the plan does include measures that will positively affect air quality, such as the phasing out of coal. The impact of bioenergy, projected to decrease only very slowly, is also acknowledged. Overall, there is a lack of analysis of the impacts of energy use and corresponding measures to smoothen the effects on air quality.

Slovenia **partially addressed** the recommendation on **just and fair transition and energy poverty**. The plan notably assesses the implications of policies on social, employment and skills aspects and shows that specific targets and measures have been further developed. However, the assessment remains too general and descriptive.

There are **some examples of good practice** in Slovenia's final national energy and climate plan. In particular, the plan identifies indicative targets for the reduction of greenhouse gas emissions by 2030 for six individual sectors affected by the Effort Sharing Regulation. In addition, Slovenia has set a long-term vision and adaptation goal reducing exposure, sensitivity and vulnerability to climate change by 2050 and considers adaptation in policies and measures, such as cooperation mechanisms, inclusion and awareness raising strategies. The final plan sets the basis for an ambitious reduction of coal use for electricity generation. Although coal phase out is still under consideration, a strategy will be issued at the latest in 2021. The plan also promotes energy efficiency across all sectors as an instrument for protecting the environment, improving energy security and reducing energy costs for families and businesses. Finally, it incorporates elements of the European Green Deal for agriculture, such as promoting sustainable organic farming.

### **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 2019<sup>10</sup>, Slovenia received one country-specific recommendation<sup>11</sup> on climate and energy, calling on it to 'focus investment-related economic policy on research and innovation, low carbon and energy transition, sustainable transport, in particular rail, and environmental infrastructure, taking into account regional disparities'. In the 2020 country report<sup>12</sup> adopted on 20 February 2020, the Commission found that Slovenia 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, Slovenia received a country-specific recommendation<sup>13</sup> stressing the importance of focusing investment on 'the green and digital transition, in particular on clean and efficient production and use of energy, environmental infrastructure, sustainable transport, 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. Slovenia's 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 sources 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 national **effort sharing target** is set at a reduction of greenhouse gas emissions by 15% by 2030, compared to 2005. The final plan increases Slovenia's 2030 national emission reduction target to -20%. It includes indicative targets for reducing greenhouse gas emissions in different effort sharing sectors by 2030 compared to 2005, specifically for transport (+12%), agriculture (-1%), buildings (-70%)<sup>14</sup>, as well as for non-ETS industry (-43%), waste management (-65%), and non-ETS energy (-34%). Under current policies, Slovenia's final national energy and climate

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<sup>10</sup> 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.

<sup>11</sup> Recommendation for a Council Recommendation on the 2019 National Reform Programme of Slovenia and delivering a Council opinion on the 2019 Stability Programme of Slovenia. COM(2019) 524 final.

<sup>12</sup> Commission staff working document. Country Report Slovenia 2020. SWD(2020) 523 final.

<sup>13</sup> Recommendation for a Council Recommendation on the 2020 National Reform Programme of Slovenia and delivering a Council opinion on the 2020 Stability Programme of Slovenia. COM(2020) 524 final.

<sup>14</sup> The indicative target set in the operational GHG reduction programme for residential and tertiary sector emissions is -76%, while the indicative emission reduction target set for buildings is -70%.



plan expects emissions to be reduced by only 10%, 5 percentage points less than the 2030 target for effort sharing sectors. However, the plan forecasts a 25% reduction with additional measures.

Slovenia does not indicate whether it intends to use the **flexibility** from land use, land-use change and forestry (LULUCF) to reach the target set for the effort sharing sectors.

Slovenia has a target to limit emission increases in the **transport** sector (+12% by 2030 compared to 2005). Its final plan identifies a broad range of support measures in this sector, including ones that contribute to a more efficient organisation of the transport system and thus towards improved energy efficiency and reduced emissions. These include measures on demand management, spatial planning, incentives for multimodality and modal shift, promotion of public transport and support for alternative modes, soft measures, and others. However, the plan does not include measures related to digitalisation and automation. The final plan also considers a broad range of measures to promote **electromobility**, including vehicle taxation and other fiscal incentives, road charge exemptions and access to funding (i.e. eco fund), and quantifies the necessary charging infrastructure. It discusses hydrogen and fuel cell vehicles, as well as alternative fuels (mostly gas) for heavy duty vehicles and shipping, and a stable share of renewable energy. It includes possible incentives for the renewal of the public transport vehicle fleet, with less polluting or alternative fuel vehicles. The plan envisages further work on the introduction of a compulsory share of renewable energy and the adoption of implementing decisions for the use of energy from waste for the processing and production of synthetic fuels in the medium term, with indicative sectoral targets for their production in transport, gas supply, etc.

The final national energy and climate plan also sets a 2030 target for further greenhouse gas emission reductions in the **building** sector, at 70% compared to 2005. The additional policies and measures described include a ban of oil heating systems from 2030 onwards. However, the plan does not provide information on the cost-efficiency of these measures.

Slovenia's plan considers contributions to reducing emissions and a number of possible financial incentives related to measures in the product use and **fluorinated gas** sector (EU level policies) and in the **waste** sector, in the context of circular economy.

The plan covers **LULUCF and agriculture** in Slovenia and includes policies and comprehensive measures for these sectors. It refers to the common agricultural policy's adaptation strategy and State incentives for forest owners for care and protection, including forest recovery following natural disasters, the implementation of silvicultural measures to increase the adaptive capacity of forests, investment in forest technology and the use of wood. It envisages continuous education and workshops on sustainable forest management. However, the plan does not provide sufficient quantitative information on how Slovenia's renewable energy and bioenergy policy will impact its LULUCF sector and affect its potential as a carbon sink. This makes it difficult to assess whether the measures are sufficient to meet the targets. The plan is committed to create no LULUCF debits in line with the LULUCF Regulation<sup>15</sup> and lists some existing LULUCF policies. However, it does not yet explain how the LULUCF sector will develop in terms of forest sink or agricultural land under different scenarios of land-use development.

The plan sets a 2050 long-term vision and **adaptation** goal to reduce exposure, sensitivity and vulnerability to climate change and increase society's resilience and adaptive capabilities, and provides an overview of policies and measures for adaptation. Adaptation measures are

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

considered for agriculture/LULUCF, but not for other sectors (e.g. concerning the acknowledged climate risks in the energy sector or co-benefits and trade-offs in energy efficiency).

As of 1 September 2020, Slovenia has not notified its national long-term strategy to the Commission as required under 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 **renewables share** is set at 27% of gross final energy consumption by 2030. This ambition is low, as it remains below the share of 37% that has been calculated using the formula in Annex II of the Governance Regulation. While an additional renewables potential up to 29.2% is indicated, this is not included in the contribution and would only be achieved in the most favourable scenario. Slovenia describes difficulties in increasing its share of renewable energy power generation because of environmental constraints – around 35% of its national territory is part of Natura 2000 – and the opposition of local communities to wind power projects and installation of new hydroelectric power plants. The indicative yearly trajectory reaches all reference points<sup>16</sup>. Yearly trajectories are also provided for each sector. The assessment of the impact of the policies and measures put forward in the plan shows that these measures are still insufficient for attaining the target set for the share of renewables.

In the **electricity** sector, Slovenia aims to cover 43% of its electricity consumption from renewable energy sources by 2030, significantly reducing the ambitions presented in the draft plan (which envisaged a 47.4% share by 2030, up from 38.6% in 2020) without providing a satisfactory reason. This new target will be achieved mainly through contributions from hydropower, followed by solar energy and some wood biomass from combined heat and power (CHP) and co-incinerators; wind and biogas are still expected to remain marginal (about 3% or lower). These policies and measures are considered insufficient in relation to Slovenia's potential in terms of renewable energy sources. In particular, hydropower, solar- and wind power would remain largely underexploited.

The use of renewable energy in **heating and cooling** is planned to increase from the expected 36.4% in 2020 to 41.4% in 2030 (the draft plan indicated 34.5% in 2020 to 30.5% in 2030). However, this is insufficient to achieve the indicative 1.3 and 1 percentage points as an annual average. The final plan includes policies and measures to increase the share of renewable energy in heating and cooling, but these are insufficient to deliver the envisaged result.

When setting the **transport** target in the final plan, as requested in Articles 25-27 of Directive 2018/2001<sup>17</sup>, Slovenia intends to focus on the development, production and use of advanced sustainable biofuels (expecting advanced biofuels to contribute up to 42% of the overall renewables used in transport). The targeted sectoral share of renewables in transport is expected to amount to 20.1 % in 2030, a significant increase compared to the figures in the draft plan. However, unlike the draft plan, the final plan does not include specific policy measures to support further electrification and production or the use of biofuels.

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<sup>16</sup> Under Article 4(a)(2) of Regulation 2018/1999 on the Governance of the Energy Union and Climate Action.

<sup>17</sup> 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.

## Energy efficiency

Slovenia's **national contribution to energy efficiency** in 2030 is of modest ambition for primary energy consumption, with 6.4 Mtoe, and of low ambition for final energy consumption, with 4.7 Mtoe.

In its final plan, Slovenia has increased its level of ambition for the target to improve **energy efficiency**, by 35% in 2030 compared to the PRIMES 2007 scenario projections. For this target to be achieved, final energy consumption should not exceed 54.9 TWh (4 717 Ktoe) and should correspond to an absolute level of primary energy consumption of 73.9 TWh (6 536 Ktoe) in 2030.

Slovenia's final national energy and climate plan mostly builds on existing measures to promote energy efficiency. These essentially combine financial and fiscal incentives and regulatory and further support measures (e.g. technical and organisational support, information platforms and education, including the energy advisors' network). They target mostly the buildings and transport sector. In the transport sector, financial incentives aim to support modal shifts, upgrades in the railway network, and the use of more efficient vehicles, combined with regulatory measures and eco-driving. Slovenia has not, however, quantified the expected impact of the measures in its final national energy and climate plan. Furthermore, the plan does not provide thorough descriptions on policies and measures beyond 2020. Information on the level of ambition related to implementing additional measures and the energy consumption target set in the energy-efficiency-with-additional-measures scenario is therefore insufficient.

Slovenia's national energy and climate plan presents the **cumulative savings** to be achieved under Article 7 of Energy Efficiency Directive (EED)<sup>18</sup> with an end-use energy savings amount of 2,169 ktoe by 2030. However, the plan does not provide details on how this figure has been calculated, so the reference timeline and calculation cannot be reconstructed. Furthermore, it does not state whether Eurostat data were used. The plan indicates that the end-use energy savings would be achieved by implementing energy services and measures put in place by energy suppliers, and with support from the eco fund and tax mechanisms. It remains unclear if the proposed policies and measures are sufficient to achieve the target, because the expected energy savings per policy measure are not estimated, and important information required by Annex III of the Governance Regulation is lacking. Slovenia's decision on implementing measures to alleviate energy poverty under Article 7 of the Energy Efficiency Directive also remains unclear.

Regarding energy efficiency in **buildings**, the plan indicates that Slovenia intends to reduce final energy consumption in buildings by 20% and to reduce greenhouse gas emissions from buildings by at least 70% by 2030 compared with 2005. However, the energy efficiency target for buildings implies a lower level of ambition than in the draft national energy and climate plan (where the target was 30%). Slovenia's final national energy and climate plan presents a comprehensive outline of measures in the building sector, considering relevant aspects in an integrated and structured manner. However, it lacks specific information and figures, for example on the surface of renovated buildings, energy savings, and investments, which would make it easier to evaluate the level of ambition and the feasibility and effectiveness of the measures. Still, the level of investment per m<sup>2</sup> is provided and appears ambitious. Slovenia has not yet submitted its long-term renovation strategy.

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<sup>18</sup> 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.

## Energy security

Maintaining a high level of **security of supply** is a priority in the ongoing transformation of the energy system set in the national energy and climate plan, with an objective of a 43% renewable electricity system and a 27% share of domestic renewable energy. When considering risks, the plan does not take into account the plans of the other neighbouring Member States.

As regards the **diversification of sources and routes**, the plan does not provide measures or objectives to increase the diversification of energy sources and supply from non-EU countries. Energy dependency is expected to decrease and clearer objectives have been set for the diversification of sources, through the promotion of renewables and energy efficiency. The final national energy and climate plan also explores the possibility of using liquid natural gas from different supply routes, and the role of gas is better explained than in the draft plan.

As regards **oil and gas**, Slovenia is in the process of building two major gas interconnector projects, one with Hungary and Italy and one with Croatia and Austria respectively. The national energy and climate plan provides an indicative target of a 10% share of methane and hydrogen of renewable origin in the transmission and distribution network by 2030.

The plan envisages further measures to reduce import dependency as regards fossil fuels, such as investment in energy **storage** and in distribution network infrastructure. In addition to nuclear energy, it also mentions synthetic methane and hydrogen technologies as key technologies to improve the security of energy supply. It includes considerations on **cybersecurity** in the energy sector. However, the plan fails to specify policies and measures that would be sufficient to be considered credible in relation to achieving the objectives.

Slovenia is committed to continuing the use of nuclear energy and to maintaining the excellence and safe operation of its nuclear installations. It will examine the possibilities for introducing new nuclear technologies and will carry out all the necessary economic and other expert analyses and activities, based on which it will be possible, by 2027 at the latest, to decide on the construction of a new nuclear power plant. It is assumed that the existing Krško nuclear power plant will operate up to the end of its extended lifespan (in 2043) upon obtaining the appropriate environmental permit. After 2030, the development of large electricity generation facilities can proceed in two alternative directions: one is the continued use of nuclear energy with the construction of a new unit, the other is the construction of larger gas-steam units [PPE] in combination with the use of natural or synthetic gas.

Finally, the plan makes appropriate links with the **electricity emergency plan**, spelling out the applicable sectorial rules, but remains rather vague about plans to ensure energy security related to gas and oil.

## Internal energy market

The national energy and climate plan states that Slovenia's **interconnectivity level** stood at 83.6% in 2017, thereby overachieving the EU 2030 target of 15%. Hence, the plan does not set any further explicit interconnectivity target for 2030. It lists current projects of common interest that will increase interconnectivity with neighbouring countries, as well as additional measures and policy instruments to boost diversification, auxiliary services, flexibility, and energy storage. An analysis of how the rising electricity demand affects the level of electricity interconnectivity and the need for infrastructure is not included.

As regards the electricity sector target of 43% renewable electricity by 2030, an overview of the development of the different sources of **flexibility** needed to integrate the rising share of renewable energy into the electricity system is provided.

The final plan provides an insufficient overview of current **market conditions** for gas and electricity, in particular regarding levels of competition and market liquidity. It indicates that Slovenia's development plan for the electricity distribution network for 2019-2028 does not meet the set energy and climate objectives. It includes further policy objectives and measures related to the internal energy market, such as measures to ensure the non-discriminatory participation of new market participants and different flexibility sources in all energy markets. However, there is no clear indication on how they would be implemented. As regards smart grids, the plan refers to an acceleration in the digitalisation of the electricity distribution grid, but considers no specific target or accompanying measures.

Regarding **energy poverty**, Slovenia does not report the number of households affected nor set any related objective.

### **Research, innovation and competitiveness**

Slovenia's final national energy and climate plan provides a concise and clear overview of specific objectives and targets on **research and innovation**. However, the plan does not systematically set policies and measures to achieve these objectives. Investment figures and the timeline to reach the targets are not provided either. The lack of a vision for 2050 is also a weak point.

The plan presents research and innovation measures on the **circular economy**, with the use of waste heat considered a priority. However, these efforts are not accompanied by investment figures or related specific and measurable milestones and deadlines.

According to Slovenia's final plan, hydrogen can play a role in integrating the production of renewable electricity, strengthening security of gas supply and reaching the decarbonisation targets. Slovenia is considering decarbonising its gas supply by blending renewable hydrogen into its natural gas network. According to its final plan, renewable hydrogen is considered as an alternative to conventional fossil fuels; Slovenia estimates that by 2040 around 7% of its fuel consumption could be provided by hydrogen, especially in the transport sector.

The final plan mentions cooperation in the framework of the **strategic energy technology (SET) plan**, but does not commit to any specific implementation working group, including the one on nuclear safety, in which Slovenia participates. National funds are not allocated under each innovation platform, and the plan does not explain how the strategic energy technology plan would contribute to the achievement of Slovenia's energy and climate objectives.

As regards **competitiveness**, the emphasis is put on increasing investment in research and development to at least to 3% of GDP by 2030, and increasing investment in private financing and partnerships, promoted through tax policy. The plan also highlights the promotion of technological development. However, there are no explicit and measurable objectives for the promotion or deployment of such technologies.

## **4. COHERENCE, POLICY INTERACTIONS AND INVESTMENT**

The policies presented in Slovenia's final national energy and climate plan are generally in line with the set objectives. **Links between policies** are generally described well. For example, the plan mentions that balancing the trade-offs between the clean energy transition and nature

conservation in Slovenia is demanding, especially as regards the deployment of renewable energy. It is true that Slovenia has a rich natural heritage, with more than 38% of its territory protected by Natura 2000, and that these areas will need to be safeguarded in the energy transition. Slovenia is drafting a strategy and action plan on restructuring its coal regions, to be finalised in 2021, and this is expected to address the implications of phasing out coal on social aspects, in particular the relocation and reskilling of mine workers. The main negative policy interactions identified concern the incremental use of biomass for heating and cooling purposes without considering the related impacts on air quality and pollution. However, some important interactions remain unaddressed. Specifically, Slovenia's national energy and climate plan does not sufficiently explore interactions among biodiversity policies, nor the trade-offs and synergies with the path to achieving the climate and energy targets. Furthermore, the plan does not consider the coherence of adaptation as it relates to decarbonisation with other dimensions of the Energy Union, such as energy supply, apart from a brief mention of extreme weather events affecting the electricity grid, without supporting measures. It also fails to provide sufficient information on how Slovenia's renewable energy and bioenergy policy will impact its LULUCF sector and affect its potential as a carbon sink. The national adaptation plan will be developed by the end of 2020.

The information provided on **investment needs**, mechanisms and funding sources needed to implement the measures specified in the national energy and climate plan are provided by sector, source of energy, and type of transport. The plan estimates that EUR 22 billion will be invested in implementing the measures from 2021 to 2030 (excluding transport), of which EUR 4 billion would come on top of the investment required by existing measures. Overall, EUR 12.6 billion are allocated to the energy component across sectors, with buildings receiving around EUR 9.5 billion. Taking into account transport infrastructure and sustainable mobility, the overall investment needs reach EUR 28 billion. These include more than EUR 5 billion of additional investment. The national energy and climate plan lays out the sources of financing at the EU and national level. Part of the public sources could come from the CO<sub>2</sub> tax, where the planned volume of funds increase gradually after 2020 as the level of the charges approaches the price of ETS allowances and revenues amount to EUR 1.8 billion in the period 2018-2030. The plan is not clear which investment needs will be covered by the national budget and what will be covered by other financing sources such as from international financial institutions. Neither does the plan describe the methodology applied to calculate the investment needs.

The description of existing **energy subsidies, in particular for fossil fuels** is presented in terms of annual expenditure from 2010 to 2017, and appears to be in line with international definitions. The plan highlights that the volume of tax breaks for fossil fuels used in transport has been growing due to the increase in energy consumption (2017). However, a timeline to phase out energy subsidies, in particular those for fossil fuels, is not specified.

On **transport**, Slovenia broadly describes the objectives and policy measures for the integration of renewables in the sector. Modal shift and multimodality are also promoted. However, limited details are provided about the planned measures, and their expected impacts are not quantified.

The final plan provides only generic and little qualitative information and analysis on **air quality and air emissions policy**, which significantly impairs a clear assessment of this aspect. Slovenia's national air pollution control programme (NAPCP) presents policy priorities, measures and air pollutant projections and includes some considerations on reducing greenhouse gas emissions. However, it is not fully clear whether and how the final national energy and climate plan has been taken into account. Hence, a new version of the air control programme with

updated assumptions that are aligned with the final national energy and climate plan has been scheduled for publication in late 2020.

The national energy and climate plan commits to a 30% decrease in the use of domestic and/or imported coal for energy purposes by 2030. However, it does not commit to a date by which the use of coal will be stopped, but rather states that relevant dates will be included in the strategy and action plan for restructuring of the coal regions, to be finalised by 2021 at the latest. Regarding **just and fair transition** aspects, the final plan has assessed the impact of policies and measures on employment and skills in general terms. The assessment is rather descriptive, however, and in most cases lacks figures. The national energy and climate plan does not provide sufficient focus on the implications of energy and climate policies in the coal regions, which will be most affected by the transition.

Concerning **circular economy**, the national energy and climate plan makes several references to the need to decouple economic growth from resource use. However, it does not specifically mention the national roadmap towards the circular economy in Slovenia published in May 2018 or other key circular economy documents. The plan also lacks actions and possible targets regarding the circular economy and no quantification of the greenhouse gas emissions reduction potential of the circular economy policies is given. Further quantification efforts would be welcome in future reviews, in line with the most recent scientific evidence. Specific measures refer to waste generation, prevention, consumer policy, industry, buildings, research and innovation, skills and education.

The national energy and climate plan has very limited information on interactions with **biodiversity** policies, trade-offs and synergies. The plan hardly analyses the biodiversity implications of relevant policies and actions, such as the development of hydro- or bioenergy.

The final plan highlights the high potential of forest and agriculture biomass for energy. It also forecasts a decrease in sinks, mainly due to the ageing of forests, and provides incentives for the collection of agricultural biomass waste and residues (crop residues, slurry, etc.) at major biogas plants. Trends in **bioenergy demand and biomass supply** by feedstock and origin have been estimated to be very slowly decreasing, and the sources of forest biomass and its impact on the LULUCF sink have been assessed.

The plan does not assess how the '**energy-efficiency first**' principle was considered across its various dimensions.

Slovenia's final national energy and climate plan partially complies with **data transparency** requirements and with the use of European statistics.

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

Slovenia needs to swiftly proceed with implementing its final integrated national energy and climate plan, as notified to the Commission on 28 February 2020. This section provides some guidance to Slovenia 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 Slovenia

could consider when developing its national recovery and resilience plan in the context of the Recovery and Resilience Facility<sup>19</sup>.

### **Guidance on the implementation of the national energy and climate plan**

In its final plan, Slovenia sets a 2030 greenhouse gas emission target for sectors outside the EU emissions trading system (non-ETS) of -20% compared to 2005, which is more ambitious than the 15% target set in the Effort Sharing Regulation. Both reduction levels would be reached with the additional measures specified in the plan. To tap into the potential of cost-effective transfers to other Member States, Slovenia would need to better qualify and quantify the relevant measures.

The Slovenian contribution to the EU 2030 renewables target is unambitious when compared to the share calculated using the formula in Annex II of the Governance Regulation, whereas energy efficiency contributions are of modest and low ambition for primary and final energy consumption, respectively. Slovenia's energy and climate plan therefore leaves wide scope to further develop and reinforce policies and measures on both renewables and energy efficiency, to contribute more to the EU climate and energy targets and strengthen the green transition.

On **renewables**, Slovenia committed to increasing the share of renewables in gross final energy consumption to 27% by 2030, which would necessitate additional policies and measures. In light of its environmental restrictions, further exploration and targeted studies will help Slovenia to further exploit renewable energy while assuring minimal environmental impact through efficient spatial planning and full compliance with water and nature protection legislation; this will ensure a sustainable energy future potential and technology options across all sectors of the economy. It is in Slovenia's interest to identify further opportunities to attract private investment and public support under different programmes, such as the Innovation Fund programme or Connecting Europe Facility (CEF) (in particular its part on renewable projects). These will support Slovenia in implementing pilot projects which could further increase the role of renewables in the heating and cooling sector in particular. Finally, Slovenia could leverage existing pilot projects to explore innovative ways of using renewable energy across the Adriatic.

On **energy efficiency**, Slovenia would benefit from adopting and implementing additional policies and measures that would deliver additional energy savings by 2030. Slovenia would further benefit from specifying the expected impact of the proposed policies and measures. In particular, identifying which policy measures will be implemented would help Slovenia ensure that the required cumulative end-use energy savings will be achieved by 2030 as required by Article 7 of the Energy Efficiency Directive (EED). In addition, further developing and providing quantitative impacts of planned policy measures under Article 7 EED and their contribution to the energy efficiency targets, and providing information on all elements required by Annex III of

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<sup>19</sup> 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). 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).



the Governance Regulation, would support Slovenia in reaching its targets. The policy framework would benefit from better consideration and application of the 'energy-efficiency first' principle by fully taking into account the co-benefits of energy efficiency measures.

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** initiative<sup>20</sup>, there is scope for Slovenia 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. Slovenia is expected to provide a robust and comprehensive long-term renovation strategy, in accordance with Article 2a of the Energy Performance of Buildings Directive. The long-term renovation strategy is required to define a roadmap for decarbonisation by 2050, with ambitious milestones for 2030 and 2040 and 2050, measurable progress indicators, expected energy and wider benefits, measures and actions to renovate the building stock, and a solid finance component with mechanisms for mobilising public and private investment.

On **energy security**, Slovenia would benefit from further developing key performance indicators to improve security of supply and diversification of resources, as well as further reducing energy dependency on non-EU countries. Finally, Slovenia might want to further develop specific measures supporting cybersecurity.

On the **internal energy market**, Slovenia would benefit from defining forward-looking objectives and targets for market integration and in particular measures to accelerate the digitalisation of the electricity distribution grid.

Slovenia's final energy and climate plan includes specific objectives and targets for research and innovation. Strong links between **research, innovation and competitiveness**, specific investment figures, related specific and measurable targets and deadlines would help make the way forward more concrete, especially with a view to the 2030 and 2050 time horizons. In this regard, it would also be beneficial to take into account the circular economy context and objectives. There is further potential in defining clear and measurable objectives, in defining investment plans for the promotion or deployment of low-carbon technologies and in extending Slovenia's commitment under the SET plan.

Slovenia estimates that, between 2021 and 2030, a total of EUR 19.2 billion are needed for **energy-related investments**. This is approximately 33% or EUR 4.8 billion higher than the energy-related investments envisaged in the scenario with existing measures, EUR 14.4 billion. When transport infrastructure and sustainable mobility are also taken into consideration, the necessary total investment amounts to EUR 28 billion. Starting mature public investment projects supporting the green transition as soon as possible can play an important role in fostering the economic recovery. Forward-looking stable policy frameworks are important to guide business and household investment decisions and incentivise prioritising investment also in the private sector.

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<sup>20</sup> Communication 'A Renovation Wave for Europe – greening our buildings, creating jobs, improving lives', COM(2020)662 and SWD(2020)550.

Slovenia 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 as regards relevant macro-regional and cross-border issues, including those in the context of the CESEC High Level Group. Slovenia would notably benefit from promoting renewable and sustainable projects across the Adriatic<sup>21</sup>.

Slovenia is also invited to better exploit the potential of the **multilevel climate and energy dialogues** to actively engage with regional and local authorities, social partners, civil society organisations, business community, investors and other relevant stakeholders and to discuss with them the different scenarios envisaged for its energy and climate policies.

Slovenia is invited to improve the analysis of **just and fair transition** aspects. In particular, a comprehensive assessment that looks into social, employment and skills development impacts of future closures of coal mines and thermal power plants is advisable in the context of the timetable for the coal phase-out and the restructuring of coal regions, to be released by 2021. In this regard, Slovenia is invited to better consider the opportunities for financial and technical assistance available under the Green Deal's Just Transition Mechanism.

As regards national efforts to address **energy poverty**, despite the plan's statement that energy poverty is not significant in Slovenia, the Commission welcomes its intention to provide an energy poverty definition and methodology to further assess its scale by 2021. Slovenia 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. More detail around the announced initiatives is expected in future, alongside efforts to better monitor existing social policy and general housing policy measures and targets related to energy poverty. In this regard, 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 with dedicated measures and specific actions. Slovenia is invited to provide quantified targets for each future objective and to introduce a comprehensive timeline to monitor the implementation of measures. Energy poverty could be, among other measures, addressed through specific support to socially innovative solutions and social enterprises that work on addressing this challenge (e.g. energy-awareness campaigns, retraining unemployed as energy advisors, supporting green installations by co-operatives, buying energy-saving appliances for social enterprises to rent out).

Slovenia is invited to continue and update the identification and reporting on **energy subsidies**. The green transition in Slovenia would receive a further boost from rapid phase-out of fossil fuel subsidies, in particular the reimbursement of excise duties on diesel fuel for commercial purposes (coupled with measures to mitigate the risk of households' energy poverty). This would involve the development and implementation of concrete plans with associated timelines.

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<sup>21</sup> 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.

For all investments implementing the national energy and climate plan, Slovenia 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, Slovenia 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 Slovenia during the forthcoming multiannual financing period (2021-2027) and EU funding addressed to all Member States and companies. For the forthcoming period, the European Council has committed to the mainstreaming of climate action into all EU programmes and instruments and to an overall target of at least 30% of EU funding to support climate objectives. At the same time, EU expenditure should be consistent with the Paris Agreement and the ‘do no harm’ principle of the European Green Deal. At EU level, funding will be available for Slovenia 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 Slovenia’s plan in that context. Nevertheless, the implementation of Slovenia’s final integrated national energy and climate plan will need to fully take into account the context of the post-COVID-19 recovery.

In the context of the Recovery and Resilience Facility, which is expected to be operational on 1 January 2021, **the final plan constitutes a strong basis for Slovenia 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, would need to 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**<sup>22</sup>. In particular, the ‘Power up’, ‘Renovate’ and ‘Recharge and refuel’ flagships are directly related to energy and climate action and to the contents of the final national energy and climate plans. Measures under the ‘Reskill and upskill’ flagship are also essential to foster the climate and energy transition in all Member States.

**In turn, the Recovery and Resilience Facility will provide opportunities to accelerate Slovenia’s green transition while contributing to economic recovery.** In order to follow the

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

commitment of the European Council to achieve a climate mainstreaming target of 30% for both the multiannual framework and Next Generation EU, Slovenia's recovery and resilience plan will have to include a minimum of 37% expenditure related to climate. Reforms and investments should effectively address the policy challenges set out in the country-specific recommendations of the European Semester, and will have to respect the principle of 'do no harm'.

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

- Measures to promote renewable energy, including by removing administrative barriers and improving the regulatory framework;
- Measures to support energy efficiency, especially through building renovation and in industrial processes;
- Measures to support sustainable transport, including urban and inter-urban mobility, transfers from road to rail and railway infrastructure.

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 SLOVENIA, 2021-2027

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

Programme	Amount	Comments
Cohesion policy funds (ERDF, ESF+, Cohesion Fund)	3.1	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.	1.7	In current prices.
Recovery and Resilience Facility	1.6	In 2018 prices. Indicative grants envelope, sum of 2021-2022 and estimated 2023 commitments. Based on the Commission's summer 2020 GDP forecasts.
Just Transition Fund	0.2	In 2018 prices. Commitments both under the multi-annual financial framework (MFF) and Next Generation EU.
ETS auction revenue	0.1	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"> <li>• Transport</li> <li>• Energy</li> </ul>	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	
<b>Decarbonisation – GHG</b>	Specify cost-efficient additional policies and measures notably on buildings in view of the 2030 greenhouse gas target for sectors outside the EU emissions trading system of -15% compared to 2005 and the corresponding commitment under Regulation (EU) 2018/841 of the European Parliament and of the Council (8) that land use, land use change and forestry emissions do not exceed removals.	Partially addressed	The plan provides some additional policies for the building sector, including a ban of oil heating systems in new buildings as from 2023. However, it does not provide any information on the cost-efficiency of these measures. Regarding LULUCF, Slovenia makes a clear statement that the LULUCF sector may not produce net emissions by 2030 (after applying the accounting rules). However, it only lists some ideas for additional measures, with no specific additional measures reported.
<b>Decarbonisation – renewables</b>	Significantly raise the level of ambition for 2030 to a renewable share of at least 37% as Slovenia's 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	The final plan makes reference to Article 5 and Article 31 of the Regulation 2018/1999 in relation to the relevant circumstances to be taken into account in setting the level of renewables and provides the following as explanations: (i) the fact that the transport sector is expected to significantly grow (from 6% in 2020 to 24% in 2030 of total energy consumption, being a challenging sector for renewables penetration); (ii) environmental and spatial legislation (with 355 Natura 2000 sites, covering 37% of the country's surface); (iii) energy efficiency measures in heating and cooling (negatively impacting as biomass in heating and cooling is displaced); high share of energy intensive industries (corresponding to 62% of final energy consumption in industry).
	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.	Largely addressed	The indicative trajectory to reach the 27% contribution in 2030 is included and reaches the reference points in 2022, 2025 and 2027.
	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 (9), to enable a timely and cost-effective achievement of this	Partially addressed	The plan includes financial incentives, legislative, technical and regulatory measures that support the electricity and heating and cooling sectors and aim to achieve the level of contributions put forward. However, Slovenia does not

	contribution.		quantify the necessary policies and measures, nor does it specify the related economic impacts. These measures also address promotion of energy self-consumption. For the transport sector, the final plan does not include specific policy measures to support further electrification and biofuel production and use. For heating and cooling, the final plan includes some policy measures to reach the objective of increasing renewable energy in heating and cooling, but these are insufficient to deliver the required increase.
	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 (10) is fully met and maintained as a baseline from 2021 onwards and explain how it intends to meet and maintain such baseline share.	Partially addressed	The plan takes the 2020 target of 25% as the baseline, maintaining this level from 2021 onwards. In addition, it reports that, in 2017 Slovenia reached a 21.04 % share of renewables and in 2018 it reached a 21.14 % share, lagging behind the trajectory objectives for those years. The plan specifically mentions that, with the exception of the heat and cooling sector, Slovenia lags behind the indicative sectoral targets in both the transport and the electricity sectors.
	Increase the level of ambition in the heating and cooling sector to meet the indicative target included in Articles 23 of Directive (EU) 2018/2001 and the transport target in Article 25 of Directive (EU) 2018/2001.	Partially addressed	The use of renewable energy in heating and cooling has been reconsidered since the draft plan and is planned to increase from the expected 36.4% in 2020 to 41.4% in 2030. However, this is insufficient to achieve the indicative 1.3 percentage points as an annual average calculated for the periods of 2021 to 2025 and 2026 to 2030, respectively, based on the annual trajectory presented. Slovenia expects that wood biomass and ambient energy will be the most important sources (63% and 18 %, respectively, in total accounting for more than 80% of the renewable energy heating and cooling). However, not enough information was included to justify the increase of renewable energy in the heating and cooling sector, both as a baseline and as a target, including the role of renewable energy in district heating systems. The final plan includes a sectoral share of renewable energy in transport of 20.1 % by 2030 (vs a baseline of 10.4% in 2020), which is a significant increase in ambition compared with the 10.1% presented in the draft plan.
	Provide concrete measures on the simplification of administrative procedures and enabling frameworks for	Largely addressed	Plans to create a supportive legislative framework to accelerate the development of renewable energy communities by 2021



	renewable self-consumption and renewable energy communities in line with Articles 21 and 22 of Directive (EU) 2018/2001.		are included. They are accompanied by the introduction of financial instruments and awareness raising actions.
<b>Energy efficiency</b>	Substantially increase the ambition towards reducing 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	The new target is more ambitious compared with the draft plan.
	Propose more ambitious policies and measures that would deliver additional energy savings by 2030. Indicate policies and measures for the whole 2021-2030 period including their impact, in terms of energy savings expected, and timeline for implementation.	Partially addressed	The final plan does not include the information required by Annex III of the Governance Regulation as regards the energy savings obligation. Thus, it remains unclear if Slovenia will meet its energy savings target by 2030. The voluntary guiding template from the Commission has not been used. Slovenia did not submit an annex, drawn up in accordance with the requirements and structure set out in Annex III to the Governance Regulation, setting out its methodologies and policy measures for achieving the energy savings requirement in accordance with Article 7 and Annex V of Directive 2012/27/EU.
			The information provided on renovating the building stock is much improved, with a target to renovate the building stock in order to achieve a 20% reduction in energy consumption and a 70% reduction in GHG emissions. More details will be presented in the long-term renovation strategy, not yet submitted.
<b>Energy security</b>	Specify the measures supporting the energy security objectives on diversification and reduction of energy dependency, including measures ensuring flexibility.	Largely addressed	Slovenia has now indicated objectives for energy security and, in particular, to ensure at least 75% of electricity supply from its own sources by 2030, and maintain at least the existing level of supply security. Slovenia also intends to harness nuclear energy and reduce import dependency as regards fossil fuels. If a new NPP is to be built, an alternative reactor vendor and alternative supplier of nuclear materials and fuels would be required to contribute to increasing the energy security. More specifically, energy dependency is planned to decrease from 77% to 68% by 2030. Clearer objectives have also been set for the diversification of sources, through the promotion of renewables and energy efficiency. The final plan also explores

			the possibility of using liquid natural gas from different supply routes. In addition, the role of gas is better explained.
<b>Internal energy market</b>	Define forward-looking objectives and targets concerning market integration, in particular measures to develop more competitive wholesale and retail markets.	Not addressed	The plan would benefit from more qualitative descriptions, as well as specific indicators upon which future objectives can be benchmarked, particularly in the following areas: real-time price signals; increase of system flexibility; demand response and aggregation; storage; distributed generation.
<b>Research innovation and competitiveness</b>	Clarify the national objectives and funding targets in research, innovation and competitiveness, specifically related to the Energy Union, to be achieved between 2023 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 sets a funding target for research and innovation and identifies broad areas where R&I efforts are needed by 2030. However, these efforts do not have quantified targets. In addition, they are not supported by specific policies or measures on energy and climate research and innovation. As regards competitiveness, specific objectives are hardly mentioned.
	Underpin such objectives with specific and adequate policies and measures, including those to be developed in cooperation with other Member States, such as the Strategic Energy Technology Plan.	Partially addressed	Cooperation with the Strategic Energy Technology (SET) Plan is mentioned only broadly.
<b>Investments and funding sources</b>	Provide a general overview on the investment needed to modernise its economy by reaching its energy and climate objectives, and a general assessment of the sources of that investment, including appropriate financing at national, regional and Union level. Considering also cost-effective generation of transfers to other Member States under Regulation (EU) 2018/842 of the European Parliament and Council (11) as funding source.	Partially addressed	The final plan includes an overview of total investment needs (amounting to EUR 22 billion) for 2021-2030. It provides a brief overview of the sources of funding, mentioning that a combination of grants, repayable public funds and financial instruments will be used to implement the envisaged investments. However, the plan does not provide a comprehensive overview of the quantified sources of funding for each investment area. Similarly, the complementarity of different funding sources is not analysed. An assessment of investment sources at regional level is not included in the plan. The final plan does not include information on the cost-effective generation of transfers to other Member States. However, it mentions that 'the planned volume of fund-raising increases gradually after 2020 as the level of the charges approaches the price of ETS coupons and amounts to EUR 1.8 billion in the period 2018-2030, which is an additional potential source of financing for the measures'.

<b>Regional cooperation</b>	Carry out a fully-fledged consultation procedure with neighbouring countries and other Member States in order to promote the achievement of the objectives of the Energy Union in a cost-optimal manner.	Partially addressed	In July 2019, Slovenia organised a regional consultation with neighbouring countries on the preparation of the final plan. This took place in Ljubljana with representatives from Austria, Croatia, Hungary, Slovenia, Italy and the Commission. The purpose of the consultation was the exchange of good practices and cooperation in the field of alternative fuels, in particular synthetic gases, and in the areas of joint transport management, renewables projects and energy efficiency, smart grids, cross-border infrastructure projects, soft education and awareness measures, efficient integration of electricity markets and governance and energy poverty.
	Explore further the cross border potential and the macro-regional aspects of a coordinated energy and climate policy notably in the Adriatic with the aim of reducing the region's carbon footprint and implementing an ecosystem approach.	Partially addressed	Slovenia does not mention cooperation in the Adriatic and Ionian Macro-region. The potential for a more integrated climate policy with neighbouring countries is not explored in the final plan.
<b>Energy subsidies</b>	List all energy subsidies.	Partially addressed	On energy subsidies, the final plan improves on the draft plan. In particular, Slovenia has provided a table with overall subsidies granted in the energy sector in 2010-2017.
	List in particular fossil fuel subsidies.	Partially addressed	The final plan includes an overall description of the amount of tax breaks for fossil fuels used in transport.
	List actions and plans to phase out energy subsidies, in particular for fossil fuels.	Not addressed	A detailed list of measures on energy subsidies as well as information on actions taken and planned to phase out fossil fuel subsidies are lacking in the final plan.
<b>Air quality</b>	Complement the analysis of the interactions with air quality and air emissions policy with more quantitative information, at least including the required information about the projected air pollutants emissions under the planned policies and measures.	Not addressed	Progress on this recommendation has been insufficient: the final plan makes only a few very general qualitative references to clean air, although the impact of bioenergy, projected to decrease only very slowly, is acknowledged. No quantitative information is provided (e.g. projections for air pollution).
<b>Just transition and energy poverty</b>	Integrate just and fair transition aspects better, notably by providing more details on social, employment and skills impacts of planned objectives, policies and measures, especially in relation to a phase-out of coal-generated electricity.	Partially addressed	The plan assesses the implications of policies on social, employment and skills aspects. However, the assessment only tackles implications at the national level, is very general, descriptive rather than specific, and in many cases not quantified. The NECP lacks a focus on the implications for the coal regions specifically. An in depth targeted analysis of the socio-economic implications for these regions, which will

			undergo restructuring due to the closure of coal mines and thermal power plants, needs to be carried out. This analysis will probably be included in the restructuring strategy and the corresponding action plan; however, some basic facts should be mentioned and explained in the final energy and climate plan as well.
	Further develop the approach to addressing energy poverty issues, including by specifying the assessment as required by the Regulation (EU) 2018/1999.	Partially addressed	The final plan describes the steps necessary to successfully address energy poverty (legally define 'energy poverty' and determine the indicators to measure it; define the final target; monitor regularly; and draft an action plan for managing energy poverty). It includes a deadline for finalising them. However, it does not fully discuss the scope of potential measures to be taken, nor does it set specific and measurable targets to be reached. Thus, the final plan would benefit from making the energy poverty targets and scope of its measures more concrete.