




Italy


1 Overview of key objectives, targets and contributions in the final NECP

Table 1: Summary of key objectives, targets and contributions of Italy's final updated NECP

		2020	Progress based on latest available data	2030 national targets and contributions	Assessment of 2030 ambition level
	Binding target for greenhouse gas (GHG) emissions compared to 2005 under the Effort Sharing Regulation (ESR) (%)		2022: -20.9% 2023: -22.3% ¹⁰⁸	-43.7%	NECP: -40.6%
	Binding target for additional net GHG removals under the Regulation on Land Use, Land Use Change and Forestry (LULUCF)		2022: Reported net removals of -21 Mt CO ₂ eq.	-3.15 Mt CO ₂ eq. (additional removal target)	Insufficient ambition: projected gap of 9.2 Mt CO ₂ eq in 2030
	National target/contribution for renewable energy: Share of energy from renewable sources in gross final consumption of energy (%)	20.4% (SHARES) 17% (target)	2023: 19.6%	39.4%	IT contribution of 39.4% is slightly above the 39% required according to the formula set out in Annex II of the Governance Regulation ¹⁰⁹ .
	National contribution for energy efficiency:				
	Primary energy consumption	158.0 Mtoe	2023: 134.82 Mtoe	123.3 Mtoe	IT primary energy consumption contribution is 123.3 Mtoe. EED recast Annex I

¹⁰⁸ The ESR emissions in 2022 are based on 2024 final GHG inventory reports, and 2023 emissions are based on 2024 approximated inventory reports. The percentage reduction is compared with the 2005 emissions as set out in Annex I of Commission Implementing Decision (EU) 2020/2126. However, the final ESR emissions for 2021-2025 will only be established in 2027 after a comprehensive review.

¹⁰⁹ Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action OJ L 328, 21.12.2018, p. 1–77 ('Governance Regulation').

					formula results: 112.16 Mtoe (Reference Scenario) or 111.18 Mtoe (Updated Reference Scenario).
	Final energy consumption	124 Mtoe	2023: 108.69 Mtoe	101.70 Mtoe	IT final energy consumption contribution of 101.70 Mtoe is not in line with the national contribution of 93.05 Mtoe submitted by the Commission.
	Level of electricity interconnectivity (%) ¹¹⁰	8.8%	2024: 5.0%	15%	IT is below the EU-wide interconnectivity target.

Source: Eurostat; Italys's final updated national energy and climate plan

2 CONSIDERATION OF COMMISSION RECOMMENDATIONS ON DRAFT NECP UPDATE

In December 2023, the Commission published a thorough assessment of Italy's draft updated NECP and provided recommendations¹¹¹ for the preparation of the final updated NECP. Italy submitted its final updated NECP on 4 July 2024, just after the deadline of 30 June 2024.¹¹²

2.1 DECARBONISATION

Italy expects to decrease total GHG emissions (including LULUCF and excluding international aviation) by 49% in 2030 and by 60% in 2040 compared to 1990.

2.1.1 Effort Sharing Regulation

Italy has partially addressed recommendation 1. The plan provides insufficient information on how Italy will work to meet its ESR target of -43.7% by 2030 compared to 2005.

The plan provides updated projections that mark an improvement compared to the draft plan but show that the existing and planned policies and measures will lead to a decrease of only 40.6% in 2030 compared to 2005, 3.1 percentage points above the national ESR target. In 2023,

¹¹⁰ Calculated by the European Commission based on the ENTSO-E data (Winter Outlook 2024). The 2020 figure covers also interconnectors with the neighbouring countries outside the EU. The 2030 level represents the general interconnectivity target of 15%.

¹¹¹ SWD(2023) 917 final, and Commission Recommendation of 18 December 2023, C/2023/9607.

¹¹² Article 14(2) of Governance Regulation.

GHG emissions from ESR sectors represented 66.5% of the total in Italy (expected to be 70.1% in 2030)¹¹³, with transport projected to represent the largest share. The ‘with additional measures’ (WAM) projected value in 2030 is roughly 16% lower than the projections under the ‘with existing measures’ (WEM) scenario, hinting that implementing the plan and complementing it with additional measures to reach the target will require a significant effort. The plan mentions the availability of a surplus from LULUCF (5.75 Mt CO₂ eq. for the period 2021-2025) to help attain the ESR target.

The final plan complemented the information on the policies and measures provided in the draft but more details on scope, timeline and expected impact on GHG emissions would be useful. This is particularly the case for **agriculture**, whose emissions have stagnated in recent years. For what concerns **transport**, the WAM projections describe a drastic decrease in emissions in the period 2022-2030, with the average percentage decrease per year more than 5 times larger than in the period 2015-2022 (from -2.14% to -5.16%).¹¹⁴ While the hierarchy of interventions on transport (Avoid – Shift – Improve) is correct and timely, the plan relies on a steep take-up of electric vehicles (4.3 M Battery-electric vehicles plus 2.2 Million Plug-in hybrid by 2030) and a six-fold increase in the use of biofuels by 2030, which is hardly compatible with the existing fleet, where blends are limited to low biofuels concentration. Furthermore, the plan still refers to support for fossil fuelled vehicles and ships (CNG, LNG and LPG).

The plan refers to the introduction of the emissions trading system for fuel combustion in buildings, road transport and additional sectors (ETS2). The WAM scenario projections account for the effect of ETS2, but do not quantify its impact in achieving the ESR target.

On **agriculture**, the plan does not provide sufficient detail in terms of funding and impacts of measures, and how these contribute to the ESR target. Moreover, the projections reflect a stagnation in emission reductions, indicating a need for targeted policies and actions.

The plan describes an effective approach to **circular economy**, including waste management and its impact on methane emissions, projecting a decline through reduced landfilling. It also details the historical reduction of **methane** emissions within the energy sector and outlines necessary measures to sustain this trend. In addition, the plan addresses **fluorinated gas** management, with projections indicating a continued decrease.

2.1.2 LULUCF

Italy has not addressed recommendation 3. The LULUCF sector in Italy generates net removals, absorbing roughly 5% of the total GHG emissions in 2022. According to the LULUCF Regulation, Italy has to enhance its net removals by -3.2 Mt CO₂ eq. in 2030 as compared to its yearly average in the 2016-2018 reference period. However, according to the latest reported 2022 figures, Italy’s performance has worsened by 13.2 Mt CO₂ eq. in comparison to the reference period. Moreover, taking into account its projections for 2030, Italy will still have a gap of 9.2 Mt CO₂ eq. in 2030. The plan indicates that for LULUCF there are no additional policies compared to the baseline scenario.

¹¹³ Share of total GHG emissions excluding LULUCF. Source: Commission calculations based on the Italian final updated NECP

¹¹⁴ Compound annual growth rate.

The plan does not provide sufficient information on how public funding (CAP, State aid) and private financing through carbon farming schemes are used to reach the LULUCF target. The plan also lacks information on the status and progress in ensuring higher tier levels and geographically explicit datasets needed to ensure the robustness of net removal estimates. Overall, based on the available information, Italy does not design sufficiently effective policies to support the land sector and the achievement of the LULUCF target.

2.1.3 Carbon Capture and Storage

Italy has addressed recommendation 2. Italy's plans with regards to CCUS are comprehensive, with complete legislation in place or under development. Support schemes are also under development. Italy is also working on cross-border flows of CO₂.

2.1.4 Adaptation

Italy has partially addressed recommendation 4. The plan refers to the National Strategy for Adaptation to Climate Change and the National Climate Adaptation Plan (PNACC) to respond to the recommendation, acknowledging the importance of integrating adaptation planning. It partially embeds adaptation policies and measures in the relevant Energy Union dimensions. The plan contains a partial **analysis of climate vulnerabilities and risks**. It makes a reference to the climate vulnerabilities and risks assessment in the PNACC, and identifies several significant risks related to GHG emissions and energy efficiency. Nevertheless, risks associated with renewable energy and floods have not been considered. The plan is short of quantifiable assessment of impacts.

The plan partially outlines **the links to the specific Energy Union objectives and policies**, that adaptation policies and measures are meant to support. On the positive side, the preservation of water resources is mentioned as necessary to achieve the objectives of the GHG emissions reduction. The related actions aim to improve efficiency of water infrastructure, effectiveness of planning and management of water resources. However, the impacts and benefits of adaptation policies on other Energy Union objectives have generally not been quantified. The plan does not set out significant **additional adaptation policies and measures** to support the achievement of national objectives, targets and contributions under the Energy Union. The measures for nature-based solutions have limited impact in reducing identified risks. The approach to address the investment gap is also insufficient as not sustained over time.

The plan partially addresses **the consequences of climate change on future water availability and its implications on the energy sector**. It however lacks a comprehensive forward-looking assessment of future water demand and supply at the national scale, aligned with expected climate warming trajectories. It also does not adequately address possible cross-sectoral conflicts such as with energy production, agriculture, and residential water use in the face of growing water scarcity.

2.1.5 Fossil Fuels

Italy has partially addressed recommendation 17. The plan includes a timeline to phase-down fossil fuels for energy use, by January 2026 for continental regions, and January 2029 for Sardinia. However, the timeline depends on the availability of sufficient alternative capacity for which Italy has tried to accelerate the necessary authorisations. The plan does not

sufficiently explain the alignment between the NECP and the TJTP for Sardinia, nor the timeline for the updated coal phase-out commitments.

The plan includes a commitment to phase out fossil fuel subsidies, referring to the RepowerEU chapter of the national RRP, which includes the reduction of environmentally harmful subsidies by 2025. This is in line with the 2023 Country Specific Recommendation issued in the context of the European Semester. However, the plan does not set a roadmap.

2.2 RENEWABLES

Italy has partially addressed recommendation 5. The final NECP targets a 39.4% contribution of renewables to gross final energy consumption by 2030, slightly lower than the draft target of 40.5%. The updated trajectory for achieving this contribution is outlined but it falls slightly short of the trajectory calculated in line with the EU's 2030 renewable energy target. Sector-specific projections, including the different renewable energy carriers for heating and cooling, district heating and cooling, industry, buildings, transport and innovative renewable energy sources for 2030 are included, but the plan does not confirm whether these constitute national targets.

Italy has partially addressed recommendation 6. The plan provides some additional information on policies and measures, including further facilitating permitting procedures, to achieve Italy's national contribution to the Union's renewable energy target, including the aim to put in place a consolidated legislative Energy Act (in adoption process) to simplify permit-granting procedures including setting up a single digital gateway for permitting in line with Directive (EU) 2018/2001 (the 'revised RED II')¹¹⁵. The plan also provides additional information on measures targeting renewable-based electrification in energy intensive industries. Nevertheless, a linkage between the specific measures and their envisaged outcome is not always quantified.

Some advancements on designation of "renewable acceleration areas" are described, however, not all of them are conducive to meeting the revised RED II targets, namely regarding the designation of areas non-suitable for renewable energy installations. This could lead to a slowdown of new installations which would conflict with the urgency to boost renewable energy deployment.

The final NECP includes projections that renewable hydrogen will reach a 54% share of industrial hydrogen consumed by 2030, in line with the revised RED II obligation. To this end, the plan lists measures to promote hydrogen use in the industry sector, although in a fragmented manner. While important European hydrogen infrastructure projects and overall enabling framework for hydrogen are being developed, specific measures enabling renewable hydrogen trade are to be addressed.

Italy has partially addressed recommendation 7. The final NECP provides additional information on projections on bioenergy demand and supply disaggregated per sector (heat, electricity, transport) but lacks providing data for imports, the source of forest biomass used

¹¹⁵ Directive (EU) 2018/2001 on the promotion of energy from renewable sources, as amended by Directive (EU) 2023/2413

for energy and an assessment of the domestic supply of forest biomass for energy purposes in 2021-2030 in accordance with the strengthened sustainability criteria of Article 29 of the revised RED II. In addition, as no projected use of forest biomass for energy production is included, Italy fails to provide an assessment of the compatibility of the projected use of forest biomass for energy production with Italy's obligations under the revised LULUCF Regulation. Finally, Italy includes further measures to promote the sustainable production of biomethane/biogas and its byproducts.

Italy has partially addressed recommendation 8 as the plan lacks details on the procedural steps and timelines for most policies and measures.

2.3 ENERGY EFFICIENCY DIMENSION

Italy has partially addressed recommendation 9. Italy has set out complete policies and measures to achieve the national contributions on energy efficiency but has not quantified the expected energy savings and the contribution for each of the reported energy efficiency measures. The energy efficiency first principle is acknowledged, with references to cohesion policies for implementation.

Italy has specified robust energy efficiency financing programmes and support schemes to mobilise private investments and co-financing as well as policy measures to promote the uptake of energy efficiency lending products and innovative financing schemes such as Energy Performance Contracts, ESCOs and revolving funds. Italy has also established a National Energy Efficiency Fund and has sufficiently detailed its role and functioning.

Italy has set out measures to develop the necessary infrastructure for high-efficiency cogeneration of district heating and cooling from waste heat and renewable energy sources, such as legislative updates setting stricter limits on the system emissions or obligations to use renewables and incentives to develop efficient district heating, as well as information and training tools on digitalisation and smart metering. Italy has not submitted a comprehensive heating and cooling assessment.

Italy has partially addressed recommendation 10. Italy has not included updated milestones after the long-term renovation strategy (LTRS) submitted in 2020 and merely refers to the targeted annual renovation rates up to 2050. The building sector is targeted throughout the NECP, in particular with financing and fiscal schemes that are expected to generate significant energy savings. However, the plan does not sufficiently describe the link between measures and financing, and renovation rates and energy savings. The measures described do not have a specific focus on the worst-performing buildings.

2.4 ENERGY SECURITY DIMENSION

Italy has partially addressed recommendation 11. In the gas sector, both the draft and final updated plans are substantial and complete, with for instance a detailed trajectory to phase out Russian gas by 2025, notably by increasing imports from Angola, Egypt, Congo, Qatar, and Algeria and by developing renewable electricity and biogas.

Several objectives have been added as regards constrained or interrupted electricity supply, notably related to interconnections, safe renewables' generation and in terms of increasing the resilience of the energy system against impacts of climate change. Energy storage is mentioned as a way to manage the growth of non-dispatchable renewable generation, even if there is still no indicative objective for the deployment of storage capacities. Planned measures were also updated, including by describing new rules for availability remuneration of electricity production capacity.

The plan describes the demand outlook for crude oil and oil products in detail. Recent capacity adjustments in the country's refining sector are mentioned as well as several upcoming plans. However, it does not fully consider the expected post-2030 decrease in demand especially in the transport sector.

The final plan has partially improved with a new list of dedicated objectives, including climate-proofing new builds, and reducing the climate vulnerability of hydroelectric and thermoelectric production. However, the section on the related measures to achieve this is not very detailed.

2.5 INTERNAL ENERGY MARKET DIMENSION

Italy has partially addressed recommendation 12. The plan details projects that would increase electricity interconnection capacity with information on net transfer capacities and the status of projects. However, it does not set a target for electricity interconnection for 2030.

Italy does not quantify flexibility needs but includes policies and measures to enhance flexibility. Italy will promote active participation of distributed energy resources such as demand response and other flexibility resources and set new rules for demand response for the provision of ancillary services. Italy also aims at procuring long-term centralised storage capacity, which will be made available to interested electricity market participants. The new measure also aims at optimising grid developments. Italy also sets the strengthening of the forward markets (e.g. PPAs and two-way CfDs) as a priority with the aim of promoting investments in renewable generation capacity.

In terms of consumer empowerment, measures focusing on energy communities, energy sharing and advisory services, Italy better empowers consumers thus making the market more competitive.

Italy has partially addressed recommendation 13. The final plan gives a good overview of the measures in place to address energy poverty to vulnerable consumers and energy poor households. The Italian authorities are still working on the methodology to develop their own indicators adapted to the national context with the help of the EPIC (Energy Poverty Indicators Calculation) Project, launched in 2023 and financed by Eurostat. However, the target for reducing the number of households in energy poverty remains unambitious as the definition of energy poverty in the national legislation and related indicators is still being implemented.

2.6 RESEARCH, INNOVATION AND COMPETITIVENESS

Italy has partially addressed recommendation 14. The plan contains a specific breakdown of investment in research and innovation (R&I) for the energy sector for 2030 and 2050 but includes no specific policies and measures to promote and implement research in the priority technological areas for 2030 of energy storage, renewables, hydrogen and other renewable fuels. Similarly, the plan lacks competitiveness targets and only mentions that the future measures on manufacturing of clean technologies will be based on NZIA and the CRMA. The key role of the circular economy in the transition and for competitiveness is clearly underlined and supported with several policies.

The plan foresees a large potential in helping revitalising nuclear energy with the possible deployment of 8 GW of nuclear capacity by 2050 in small and advanced modular reactors (SMRs/AMRs), and microreactors, out of which 0.4 GW are expected to be of fusion origin.

The final plan does not describe a predictable and simplified regulatory framework for permitting procedures for manufacturing, nor how access to national funding will be simplified. The plan does not put forward clear measures to promote the development of net-zero projects, including those relevant for the energy intensive industries, but contains measures for regional cooperation and information on initiatives to bridge potential skills gaps for the transition.

2.7 FINANCING THE ENERGY AND CLIMATE TRANSITION

Italy has partially addressed recommendation 15. The plan provides an estimate of the additional investment needs for the period 2024-2030 of EUR 174 billion compared to the WEM scenario. The assessment is based on a sound methodology, using a top-down model. It covers the energy sector (electricity generation and networks, energy storages, electrolysers, and district heating), industry, vehicles and buildings. This estimate does not include transport infrastructure, nor policies for GHG emission reduction in other sectors. Private and public investment are not reported separately. The plan does provide a list of public support schemes and occasionally outlines their main sources of public financing. However, this is not done in a consistent way for all measures, and it is not linked to the investment needs figures, making it not sufficient to assess a potential financing gap, or how this would be filled.

Italy has partially addressed the recommendation to provide a robust assessment of the macroeconomic impact of the planned policies and measures. The macroeconomic assessment lacks a comprehensive analysis of key dimensions as consumption, government budget, and impact of carbon pricing.

2.8 JUST TRANSITION

Italy has partially addressed recommendation 18. The plan provides information on the impact of the transition to climate neutrality on employment but does not sufficiently address the impacts on the most vulnerable households. Moreover, the plan does not specify the form of support, the impact of initiatives or the resources available, except for the JTF and a minor amount from ETS revenues. The analysis focuses on the JTF and the Territorial Just Transition Plan.

The plan explains why Italy expects delays in the coal phase-out compared to the timeline provided in the TJTP for Sulcis Iglesiente in Sardinia, mentioning grid security, missing enabling infrastructure and the impact of Russian war of aggression in Ukraine. Italy commits to finalising the coal phase-out in the region in question between 2025 and 2028 and refers to concrete measures to protect workers through retraining and relocation.

The plan lacks the analytical basis needed for the preparation of the Social Climate Plan, such as information on the estimated impact of ETS2 and the identification of vulnerable groups. The plan does not explain how the policy framework in the NECP will contribute to the preparation of the Social Climate Plan nor how the consistency of the two plans will be ensured.

2.9 PUBLIC CONSULTATION

Italy has partially addressed recommendation 19. Italy organised two rounds of public consultations, including a wide range of stakeholders and a multi-level dialogue. The second round of consultations, based also on a preliminary version of the plan, started relatively close to the submission of the final plan (spring 2024). A Strategic Environmental Assessment was still ongoing at the time of the submission. The plan includes a summary of the outcome of the consultations, but only limited information is provided on what was discarded and why.

2.10 REGIONAL COOPERATION

Italy has partially addressed recommendation 20. The plan includes a detailed list of initiatives aimed at increasing Italy's engagement with neighbouring Member States, including in the context of the CESEC High-Level Group, but the plan still does not identify common challenges and shared objectives in terms of interconnectivity, renewables, energy efficiency and internal market in a detailed way. Italy does not provide additional information on establishing the framework for cooperation on joint projects by 2025 in line with Article 9 of the revised RED II. The final plan refers to ongoing negotiations with Greece, Austria and with France but not with Croatia to sign bilateral solidarity agreements.

2.11 ANALYTICAL BASIS

The plan provides a description of the analytical framework, with projections reaching 2040. It considers economic, employment and skills, research, innovation, and environmental impacts. Social and competitiveness outcomes are considered on a qualitative basis. Health, gender, and distributional impacts are not examined. The methodologies are described in detail. The final NECP includes an impact assessment of policies and measures.

2.12 STRATEGIC ALIGNMENT, COHERENCE AND INTERACTION WITH OTHER PLANNING INSTRUMENTS AND POLICIES

Italy addressed recommendation 16. The plan covers sufficiently the main reforms and investments of the Recovery and Resilience Plan (RRP) that contribute to implementing the objectives, targets, and contributions of the Energy Union.

3 GUIDANCE ON THE IMPLEMENTATION OF THE NATIONAL ENERGY AND CLIMATE PLAN

The Commission encourages Italy to ensure a timely and complete implementation of the measures needed to achieve its national climate and energy targets. Italy is invited to pay particular attention to the following main elements:

- Closely monitor the impacts of the policies included in the plan on emission reductions under **the ESR**, increase efforts across all effort sharing sectors and explore possible available flexibilities to ensure compliance with the ESR.
- Decrease the dependency on **fossil fuels** in transport and buildings. Address **transport** emissions through a conducive framework for EV deployment, in line with the ambitious target presented in the plan, including through stable fiscal incentives such as car ownership and company cars taxation based on CO₂.
- On **LULUCF**, implement additional measures given the widening gap to the target. Increase monitoring and enforcement of sustainable forest management practices to address the risk of natural disturbances and improve the targeting and the commitments of existing interventions such as CAP measures on crop rotation and agroforestry.
- On **adaptation**, further assess future water demand and supply under different climate scenarios to evaluate impacts on the energy system, with particular attention to cross-sectoral water conflicts. Elaborate a thorough assessment and mapping of climate risks covering all relevant water-using sectors to ensure a comprehensive approach to water management.
- Set a clear roadmap with specific measures to phase out **fossil fuel subsidies**.
- On **renewable energy**, aim to achieve the more ambitious target of 40.5% as indicated in the draft plan. Address overreliance on imported renewable technologies and fuels (e.g., bioenergy and biogas imports), given the volatile nature of international biofuel markets and the potential for competition with food production. Increase circularity, supporting biofuel targets without negatively impacting other objectives, such as those under LULUCF.
- On **energy efficiency**, put in place measures to achieve the higher ambition by 2030 in line with the requirements of the EED recast. Set up further measures to improve energy efficiency in transport as well as in industry to achieve the required energy savings.
- Clarify plans on the development of nuclear energy, which has an important implication on the green transition and long-term investment decisions by industry, including on **CCS**, given the costs, the construction time, the complexity of the political processes and the potential need for regional cooperation.
- Develop and implement a framework that promotes **energy system integration**, accommodates increased shares of renewable energy sources across sectors, particularly in buildings and industry.
- Promote **demand-response and flexibility programs**, including to promote energy storage and to enable consumers to adjust energy use in response to price signals, and consistency with energy efficiency measures to maximize their impact.

- On **industry**, support decarbonisation through the uptake of renewables and waste heat, including through heat pumps or heat storage. Foster electrification through the PPA market, leveraging on the experience with the first RES-H (FER-T) support scheme, and removing regional obstacles to RES deployment conflicting with the national decree on RES acceleration.
- On **buildings**, accelerate the pace of renovation of the worst-performing residential buildings and those of vulnerable households. Further promote the electrification of heating and deployment of heat pumps by addressing the unbalanced electricity-to-gas-price ratio.
- Clarify how the development of **innovative technologies and industries** will be supported ensuring consistency with the **SET-Plan** and Horizon Europe to support the development of innovative industries in Italy. Detail planning of policies and measures to digitalise its energy system with a focus on grid infrastructure.