

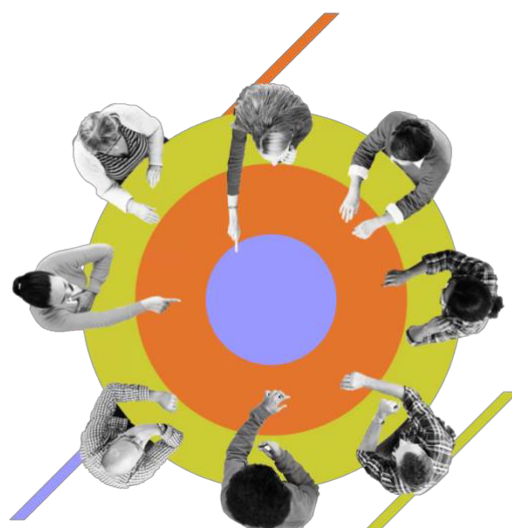


THE ITALIAN CLIMATE CHANGE THINK TANK

THE NATIONAL ENERGY AND CLIMATE PLAN

A plan for action

KEY FINDINGS



SYNTHESIS OF THE RESULTS

The National Energy and Climate Plan (NECP) translates the commitments of the European Union towards the Paris Agreement into national policies and objectives. The current revision must review the commitments based on a target of reducing greenhouse gases (GHG at the EU level) by -55% by 2030 compared to 1990, as outlined by the 'Fit for 55' package.

	Unit of Measure	Data 2021	Fit for 55 target
Greenhouse Gas Reduction Targets			
ETS Reduction Target (compared to 2005)	%	-47	-62
Effort Sharing Reduction Target (compared to 2005)	%	-17	-43.7
Target for Increased Absorption (LULUCF)	MtCO _{2eq}	-27.5	-35.8
Renewable Energy Targets			
RES Share in Gross Final Energy Consumption	%	19	38.4%-39%
RES Share in Gross Final Energy Consumption in Transport	%	8	29%
RES Share in Gross Final Consumption for Heating and Cooling	%	20	29.6%-39.1%
Share of Hydrogen from RES on the Total Used in Industry	%	0	42%
Energy Efficiency Targets			
Primary Energy Consumption	Mtep	145	115 (±2.5%)
Final Energy Consumption	Mtep	113	94.4 (±2.5%)
Annual Savings in Final Energy Consumption	Mtep	1.4	73.4

Table 1 – Targets of the Fit for 55 Package for Italy (Source 2023 NECP)

In the absence of a national governance for climate and energy, the NECP (National Energy and Climate Plan) represents a key tool in defining the framework for implementing climate and energy policies for Italy. Its policies affect the lives of all citizens, and its time horizon—ten years—is much broader than that of economic and financial planning, as well as that of government cycles.

For this reason, the Plan must be structurally suited to its function, with a solid governance framework that makes it adaptable over time in relation to its objectives.

The NECP (National Energy and Climate Plan) proposal sent last July to Brussels declares the intention to have a realistic approach, away from the excessive optimism of the 2019 Plan.

With this work, we have attempted to define how the NECP (National Energy and Climate Plan) can become a realistic plan, meaning a plan whose declared objectives become concrete and achievable within the expected timeframe.

A realistic plan implies the ability to accompany the framework of policies and measures for achieving the objectives with a strategy for their implementation.

Policies and measures must be complemented by enabling elements, which we have referred to in our work as the cross-cutting dimensions of the plan: Governance, finance, and the social dimension. They must be accompanied by the quantification of the foreseen public expenditure and the presence of mechanisms for assessing the effectiveness of the incentives; by a financial strategy to bridge the gap in the necessary investments both through the proposal of tariff and fiscal instruments for their sustainability over time and through the activation of private investment leverage thanks to a commitment to build a legislative and regulatory environment consistent with and favourable to the objectives.

This study starts from the development of a bottom-up emissions scenario 2021-2030, **based on policies and their expected effect**, in order to highlight risks and opportunities. The scenario, called ECCO-FF55, was developed for the four main macro-sectors of energy generation and use: power, buildings, industry, and transports, which are responsible for 76% of national emissions.

During the period 2021-2030, the ECCO-FF55 scenario foresees an overall reduction of **-54.5%** in GHG (Greenhouse Gases) **emissions compared to 2005¹**, reaching a value of **270 MtCO₂eq by 2030**, compared to the **312 MtCO₂eq** of the NECP(National Energy and Climate Plan) 2023², thus meeting the reduction targets set by the Fit for 55 package, with particular reference to the national reduction target established by the Effort Sharing.

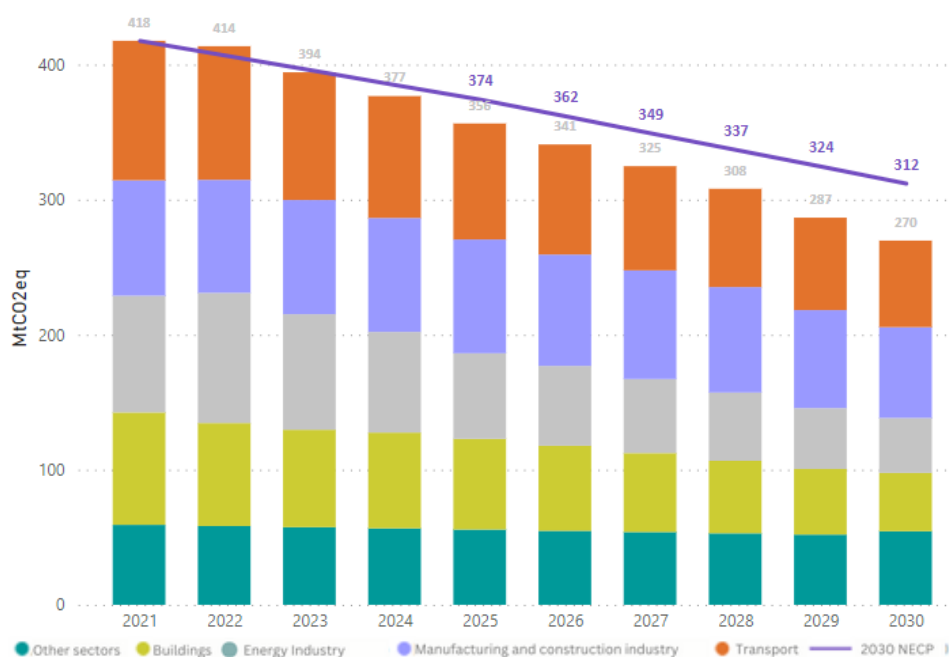


Figure 1 – Emission scenario ECCO-FF55 for 2021-2030, excluding LULUCF, and comparison with the NECP scenario
- Source: ECCO analysis [MtCO₂eq]

¹ Reference year for EU climate and energy policies. This percentage translates to 48% when compared to the emission levels of 1990, the baseline for communicating the EU's commitment to the Paris Agreement. This represents Italy's contribution to the overall contribution of the Union, which amounts to - 55% compared to the 1990 levels.

² Table 84 of the National Energy and Climate Plan (NECP)

According to the results of the ECCO-FF55 scenario:

- **Power sector** – In the ECCO-FF55 scenario, the power sector reduces its emissions by 52% compared to 2021. The ECCO-FF55 scenario foresees a contribution of renewables to the gross internal consumption of 72%, compared to 65% in the 2023 NECP, and a parallel development of energy storage systems, networks, and flexibility resources for about 4 billion euros of investments. The scenario takes into account Italy's **commitment at the G7 for a fully or predominantly decarbonized power sector by 2035³**, and is based on the evidence that the decarbonisation of all the sectors of the economy is enabled by that of the power sector. In the scenario, the increasing penetration of renewables begins to make green hydrogen available for the hard-to-abate industry around 2030, enabling the possibility of decarbonising the industrial sector. It is projected that 8 TWh of green hydrogen will be produced by 2030 to replace the current industrial demand for hydrogen produced with fossil fuels. In addition to implementing all necessary measures for permitting and market to encourage the uptake of renewables in the power sector, the measure considered as the most significant is the implementation of a monitoring mechanism for the development of renewables with the possibility of dynamic and timely adjustments of measures in case of delays. This is to monitor not only the installed capacities, and the progress in permitting procedures, but also the effectiveness of the market and policies in delivering enabling infrastructures: transmission and distribution networks, storage systems, electrolyzers, demand flexibility.
- **Manufacturing Industry** – The sector reduces its energy related direct emissions by 37% compared to 2021 (compared to -24% of 2023 NECP). The main driver considered for this sector is the exploitation of the potential for **electrification** of medium and low temperature heat (<150°C), which allows for a reduction of 8.3MtCO₂ by 2030. The electrification of low temperature heat in the industrial sector is not explicitly mentioned as a measure in the current version of the NECP. Additionally, the use of **biomethane** in energy-intensive sectors, the use of the potential of green hydrogen generated from the decarbonisation of the power sector to replace the current demand for **hydrogen** produced from fossils, and the initiation of the decarbonisation process of the **ex-ILVA in Taranto⁴** through replacing coal with natural gas in the DRI process with a blend of 10% hydrogen by 2030, contribute to the goal. In light of the structural complexities of decarbonisation of the manufacturing sector and its strategic relevance, it is considered essential that **the NECP provides a comprehensive contribution**, in which this sector has a dedicated space to coherently group policies both in terms of decarbonisation and impacts on the socioeconomic context of the country. In particular, there emerges the need for a strategy for low-temperature heat electrification in industrial uses, also through the enhancement and revision of current incentive tools, a focus on decarbonisation, and a correction of the levels of taxation and parafiscal charges on electricity consumption compared to natural gas. Policies for the decarbonisation of industry should act

³ Communiqué 2023 [https://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Europa___International/g7_climate_energy_environment_ministers_communique_bf.pdf](https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/20/g7-hiroshima-leaders-communicue/#:~:text=We%20reaffirm%20our%20commitment%20to,temperature%20rise%20within%20reach%20a nd, which refers to the communiqué of the previous year <a href=)

⁴ To maintain consistency and enable comparisons in line with the emission scenarios of the NECP, emissions from the ex-ILVA in Taranto are accounted for in two sectors. A portion is counted in the energy industries sector, relating to the production of coke, and another portion in the industrial sector, pertaining to blast furnace steel production.

in an integrated manner, including policies to encourage the demand for products with lower CO₂ emissions (GPP, labeling) also in view of a strategy for competitiveness in the international markets of the national industry.

- **Transport** – The sector reduces its emissions by 37% compared to 2021, achieving an additional reduction of 12.8 MtCO₂eq compared to the NECP targets. The proposed measures primarily focus on **reducing the demand for private transportation** through the implementation of policies outlined in the NRRP (National Recovery and Resilience Plan) and the comprehensive planning tools for sustainable mobility, which account for a reduction of 14.5 MtCO₂eq (37% of the total). The increase in the number of electric BEV (Battery Electric Vehicles) in the circulating vehicle fleet – 3.5 million cars, a number lower than the 4.3 million projected in the NECP – contributes to a further reduction of 5.8 MtCO₂eq (15% of the total). Additional reductions are attributed to the expected projected increase in efficiency of traditional vehicles, an initial penetration of electric vehicles in road freight transport, and the implementation of NRRP investments for the electrification of national port docks (cold ironing), as well as partial replacement of the ferry fleet for transporting people and goods to and from the islands⁵. The reduction contribution associated with the use of biofuels has been calculated based on the total consumption assumed by the NECP. For this sector, a key enabler appears to be the need for very effective governance of the Plan in **coordination with local government** levels to implement measures, ensuring that transport demand is fully met, allowing for a reduction in private transport demand and its gradual conversion towards electric mobility.
- **Building sector**⁶ – The contribution of the building sector to the overall reduction is around 16%, amounting to a total of 36.2 MtCO₂eq, compared to the 48 MtCO₂eq projected in the NECP. In this case, the main drivers of reduction are a greater electrification of end uses due to a faster replacement of traditional heating systems with exclusively electric heat pumps and an increasing rate of renovations—from the current value of 0.37% to 4% by 2030. The key measure underlying this scenario involves targeted incentives for renovations and the replacement of heating systems, such as a proposed reform of the current eco and super bonus mechanisms for energy efficiency, which should be more aligned with decarbonisation objectives and strengthened with long-term financing mechanisms to make this measure structural. Such a measure should be accompanied by a necessary rebalancing of gas-electricity tariff systems.

As per the working methodology of ECCO, during its development, this study was enriched by contributions collected from various stakeholders involved in sectoral working groups, also addressing the cross-cutting dimensions of the Plan (governance, finance, social issues, industry, electricity, buildings, transport).

⁵ This latter contribution, initially considered under the Effort Sharing Regulation (ESR), will need to be quantified within the EU Emissions Trading System (ETS) following the sector's inclusion in the EU ETS. This change is in accordance with the latest revision of the EU ETS Directive.

⁶ It is noted that no specific measures have need considered regarding 'energy' emissions in the agricultural sector, which, according to the inventory classification, are 'combined' with the building sector, although the potential for reduction is quite significant (the sector emits about 7MtCO₂eq). While respecting the objectives of the RED directive, it could be assumed to allocate at least part of the biofuel potential for heating and powering agricultural machinery, shifting the current Environmentally Harmful Subsidies towards the promotion of alternative fuels.

It is within this context that the importance of the **Plan's governance** emerged more clearly, that is, the need for the Plan to have a different implementation strength compared to the current version. It is important that the NECP is positioned within the legal framework at **the highest decision-making levels, such as being adopted as a resolution by the Interministerial Committee for Economic Planning and Sustainable Development (CIPESS)** following Parliamentary examination.

At the same time, the governance of the Plan should ensure the possibility of continuous **monitoring and evaluation**, with the ability to dynamically modify measures, and the factual **involvement of all actors variously involved in the implementation of the Plan in the definition** phases, with the institutionalization of procedures for multi-level dialogue.



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