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Tel. +39 06 8305 5699
ufficiostampa@enel.com
gnm@enel.com

enel.com

"NET ZERO E-CONOMY 2050" STUDY BY ENEL AND THE EUROPEAN HOUSE - AMBROSETTI: THE ACCELERATION TOWARDS DECARBONIZATION ENSURES MORE EFFECTIVE INVESTMENTS AND GREATER ECONOMIC, SOCIAL AND ENVIRONMENTAL BENEFITS

- *The study analyzed the trajectories of the energy transition in Italy and Spain and quantified the gaps with respect to the targets for reducing greenhouse gas emissions, expanding the use of renewables and improving energy efficiency*

- *It shows how a firm commitment to achieving the decarbonization objectives guarantees greater economic, employment and energy independence benefits at European level compared to scenarios with reduced ambitions*

- *The study establishes scenarios for decarbonization by 2050 in Italy and Spain, the investment amounts and the economic, social and environmental benefits. It identifies two prerequisites and five proposals to overcome the difficulties of the energy transition in the European Union, Italy and Spain*

Cernobbio, September 3rd, 2022 – The acceleration of the introduction of policies that favor the energy transition and the achievement of a zero-emission economy by 2050 will allow, in addition to strengthening the independence and energy security of the European continent, greater opportunities for creating value and employment versus low-ambition scenarios. This is what emerged from the "*Net Zero E-conomy 2050*" study carried out by the Enel Foundation and The European House - Ambrosetti in collaboration with Enel, presented today, as part of the Forum of The European House - Ambrosetti, at a press conference attended by Valerio De Molli, Managing Partner & CEO of The European House - Ambrosetti, Francesco Starace, CEO and General Manager of Enel and Andris Piebalgs, Professor at the European University Institute and former European Commissioner for Energy.

"Two years since the outbreak of the COVID-19 pandemic, with its significant implications on the global economy, the war in Ukraine has made concerns about the sustainability of the current energy system more urgent than ever. While the need to tackle climate change alone is more than enough reason to pursue an energy transition, the vulnerability of our oil- and gas-dependent economies has made this urgency more pressing than ever," said **Francesco Starace**, CEO and General Manager of Enel. *"This study very clearly highlights the excessive dependence on gas of some economies of EU countries, namely Italy's significant dependence and the very clear advantages that an accelerated reduction in the use of fossil energy sources can bring precisely to those who make excessive use of them today."*

"It is now more necessary than ever to implement timely decisions and actions to facilitate a rapid change of course. This is the basis of the "Net Zero E-conomy 2050" study. The analyses identified two decarbonization scenarios ("Low Ambition" and "Net Zero") for Italy and Spain. The "Net Zero" scenario envisages investments of €3,351 billion in Italy and €2,215 billion in Spain over the 2021-2050 period, lower than the investments required for the "Low Ambition" scenario," commented **Valerio De Molli**, Managing Partner and CEO of The European House - Ambrosetti. **"***The "Net Zero" scenario involves not only lower investments but also more benefits. When compared to a*

counterfactual, the "Net Zero" scenarios in Italy and Spain are associated with significant benefits by 2050, in terms of economic returns (+€328 billion and +€223 billion), employment (+2.6 million jobs and +1.8 million jobs), reduced pollution (-€614 billion and -€317 billion in health-related costs and lower productivity) and savings on fossil fuel costs (-€1,914 billion and -€1,279 billion). Compared to today, moreover, the "Net Zero" scenarios in both countries guarantee benefits in terms of energy security by 2050, enabling a reduction in gas intensity (-94% and -92% in the gas intensity to GDP ratio compared to 2020) and energy dependence (-73.5 p.p. and -54.9 p.p. compared to 2020)".

The trend of global CO_2 emissions, which continued to grow, reaching a negative record of 36.3 billion tons in 2021, has highlighted more than ever the need to rethink the current energy system. To meet this challenge, the EU has set itself the goal of becoming "climate neutral" by 2050. In both Italy and Spain, however, there are some criticalities in the energy transition process. In particular, performance in greenhouse gas emissions is insufficient in both the short and long term. In 2050, the gap between the inertia trend and the targets of the respective long-term national strategies is approximately 151.2 million tons CO_2 - eq in Italy and 136.9 million in Spain.

The current energy crisis, with soaring prices on international energy markets and the outbreak of conflict between Russia and Ukraine, has further highlighted the EU's vulnerability and energy dependency on imported fossil fuels. Europe is 57% dependent on energy imports and in the 20-year period 2000-2020 this share has remained virtually unchanged. Italy ranks 2nd in the index of dependence on natural gas among EU countries. Therefore, the decarbonization process is a key tool to achieve energy independence. In the last 10 years, the reduction of energy dependence in Italy and Spain (-9.1 p.p. in both countries) has been accompanied by an increase in the rate of electrification (+1.5 p.p. in Italy and +3.3 p.p. in Spain) and in the spread of renewable energies (+2 p.p. in Italy and +4.7 p.p. in Spain) in final energy consumption.

A more decisive acceleration of decarbonization would require fewer resources than a less ambitious scenario. The "Net Zero" scenarios identified for Italy and Spain by the study envisage investments of €3,351 billion and €2,215 billion over the 2021-2050 period respectively, lower than the investments required for the "Low Ambition" scenarios (€3,899 billion in Italy and €2,761 billion in Spain).

The study highlights how "Net Zero" scenarios in Italy and Spain are associated with significant social, economic, environmental and energy security benefits. The "Net Zero" scenario generates a better economic impact than the "Low Ambition" scenario. Considering the estimated investments, this translates, for Italy and Spain, into €328 and €223 billion of higher economic returns respectively compared to a counterfactual scenario, and more jobs created (2.6 million against 2.1 in the "Low Ambition" scenario in Italy and 1.8 against 1.7 in Spain). Savings related to reduced illness, improved productivity and reduced premature deaths made possible by the containment of pollution in the "Net Zero" scenario amount to approximately €614 billion in Italy and €317 billion in Spain (compared to economic savings of €495 and €205 billion in the "Low Ambition" scenarios in Italy and Spain). Regarding savings on fossil fuel costs, in the period 2021-2050 the benefit in the "Net Zero" scenario compared to a counterfactual scenario would be €1,914 billion (compared to €851 billion in the "Low Ambition" scenario) in Italy and €1,279 billion in Spain. The "Net Zero" scenario would also allow a significant reduction of gas intensity on GDP, which in Italy could decrease by 94% compared to current figures (compared to -76% for the "Low Ambition" scenario in 2050) and in Spain by 92% (compared to -56% for the "Low Ambition" scenario). Finally, the "Net Zero" scenario would allow a further reduction in the energy dependency ratio compared to national plan projections, from 73.5% in 2020 to 0% in 2050 in Italy (31.3% in the "Low Ambition" scenario) and from 67.9% to 13% in Spain (52% in the "Low Ambition" scenario).

To accelerate the path to a zero-emission economy, the study focused on two prerequisites and five policy proposals: one proposal covers all analyzed economic sectors across the board, while the other four are sector-specific initiatives. The first prerequisite is the need to ensure stability, transparency and consistency of European, national and local energy policies and measures; at the same time, it is crucial to support industrial production in upgrading existing green technologies, developing new green solutions and eliminating fossil fuel subsidies. As for the cross-cutting proposal, it suggests ensuring a stronger form of cooperation and a greater degree of harmonization in the governance of the energy transition at European level. With regard to sectoral proposals, in the electricity sector the suggestion is to simplify authorization procedures for renewable plants, facilitate energy infrastructure

works, promote demand management, and the deployment of storage facilities and flexibility solutions. To promote decarbonization in transport, there is a need to simplify the procedures for building charging infrastructures, strengthen collaboration between all electric mobility players, promote interoperability, optimize grid connection times and promote the electrification of Local Public Transport (LPT). For the industrial sector, legal frameworks should be exploited to support the technological shift towards greener solutions, to create technology transfer laboratories for direct and indirect electrification solutions and to foster demand-response systems. Finally, in the area of buildings, the study proposes the phasing out of fossil fuel boilers - through a fair, stable and transparent framework for heat pumps - and the creation of a one-stop shop to support building renovation.