



Press release
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ENGIE calls for action in the face of potential risks to Europe's decarbonization pathway

For the second year running, ENGIE is presenting its Decarbonization Pathway for Europe by 2050 ¹.

At a time when the Draghi and Letta reports single out energy as a factor undermining the competitiveness of the European economy, it is more necessary than ever to think about how to optimize the costs of the energy transition. The purpose of this scenario is precisely to propose the optimal pathway to **meet the European Net Zero Carbon by 2050 goal, while guaranteeing a reliable and affordable energy transition.**

Although the energy transition is well underway in Europe, with a 2% annual reduction of its greenhouse gas emissions between 2010 and 2020, ENGIE's 2024 scenario affirms that Europe must up the pace and reduce its emissions by 4% annually through 2050 if it is to reach carbon neutrality by this deadline.

A massive electrification, along with the activation of all decarbonization levers - including the development of green molecules - will be necessary to achieve the energy transition at the lowest cost. While certain solutions have already reached an advanced stage of maturity, others must, as of now, ramp up their development and at-scale deployment so that Europe can meet its Net Zero goal:

- **Europe's 2030 Fit for 55 goal is within our reach** as it is largely underpinned by mature technologies (solar, wind, electric vehicles...). The challenge now is to accelerate their rollout.
- **Yet its 2050 Net Zero carbon goal is much more at risk.** Indeed, 70% of the technologies required along with associated uses, such as the decarbonization of air and sea transport, or heavy industry, have not yet been fully tested on an industrial scale. These levers are still subject to considerable industrial, financial and regulatory uncertainty.

"In the current geopolitical context, Europe must, more than ever, face up to its responsibilities. To remain master of its own destiny, to preserve its sovereignty and competitiveness, it must step up the pace of energy transition. Hence, we must pursue an in-depth transformation of our entire energy system: from production to consumption, from the electron to the molecule, by way of heating and cooling, with flexibility and infrastructures playing a major role. Leveraging European scale will be crucial to this endeavor. Meeting this challenge requires the mobilization and cooperation of all players, both public and private, with whom we share today our firm convictions and solid proposals. As a committed player in the energy transition, ENGIE will fully play its part in this collective effort." Catherine MacGregor, CEO of ENGIE.



The 2024 presentation focuses on two key challenges of the energy transition:

- **Flexibility at the heart of tomorrow's energy system**

The achievement of European targets requires that renewable energy production be increased 5.5-fold and that **flexibility solutions be increased 4.5-fold, thus enabling adjustment of electricity supply and demand.**

These solutions are essential to avoid having to oversize the means of electrical production. Flexibility enablers include: the development of decarbonized thermal assets, hydraulic assets, and grid-connected battery storage systems, **but also demand-side management**, in particular thanks to electrolyzers producing renewable hydrogen, domestic batteries, electric vehicles, hybrid heat pumps, and curtailment of industrial production.

In 2050, almost two thirds of flexibility capacity will be demand side, resulting in a major overall transformation of the energy system and consumer behaviors.

- **Significant, yet affordable costs**

The decarbonization of Europe requires significant investment in all levers of the energy transition: new decarbonized energy production capacities, infrastructure development, building renovation and more efficient heating solutions, electric vehicle fleets along with adequate charging infrastructure, adaptation of industrial processes, etc.

This investment will be gradually offset by savings made on the importation of fossil fuels (natural gas, oil) thus helping to strengthen our energy independence.

Taking these savings into account, the net cost of decarbonizing Europe would be around 1.8% of GDP between 2025 and 2030. This amount should decrease over subsequent decades: 1.5% of GDP between 2031 and 2040 and 1% of GDP between 2041 and 2050.

The cost of decarbonization is considerable, yet within the reach of our economies.

It is also worth weighing up the cost and challenges of inaction (estimated at around 10% of GDP per degree of additional global warming)².



Key indicators for reaching Net Zero in Europe in 2050

- -30% reduction in final energy demand, which is decoupling from economic growth (GDP: +1.3% per year)
- A 65% decrease in energy dependency (fossil fuels and molecules imports)
- Electrification of uses and a 5.5-fold increase in renewable capacity (solar and wind)
- A 4.5-fold increase in flexibility capacity, (3/4 of which will be supply side)
- - 45% reduction in methane demand, which will be fully decarbonized
- A 7-fold increase in hydrogen demand (100% low carbon by 2050), driven by new uses such as aviation, maritime and heavy industries.

Cost of decarbonization

- Less than 2% of GDP through 2050
- Cost of electric MWh stable

10 bold measures to achieve Europe's objectives

Transversal

1. Introduce a carbon price floor increasing over time
2. Optimize the energy system at European scale by enhancing market integration

Supply

3. Remove regulatory bottlenecks for renewable power deployment and facilitate trans-European green power PPAs / CfDs through access to long term cross-border transmission right
4. Define targets for decarbonized gases solely based on their carbon intensity

Demand

5. Boost large-scale demand for renewable and low-carbon gases in hard-to-abate sectors
6. Capture the full potential of heat recovery
7. Target renovation efforts on most inefficient buildings and low-income households

Flexibility

8. Valorize both demand-side flexibility and supply-side flexibility

Infrastructure

9. Require infrastructure operators to anticipate grid developments ahead of Renewables, Battery Energy Storage System (BESS), as well as H2 projects
10. Facilitate investments of private capital in European energy infrastructures to address investment gap



About ENGIE

Our group is a global reference in low-carbon energy and services. Together with our 97,000 employees, our customers, partners and stakeholders, we are committed to accelerating the transition towards a carbon-neutral world, through reduced energy consumption and more environmentally-friendly solutions. Inspired by our purpose, we reconcile economic performance with a positive impact on people and the planet, building on our key businesses (gas, renewable energy, services) to offer competitive solutions to our customers

Turnover in 2023: €82.6bn. The Group is listed on the Paris and Brussels stock exchanges (ENGI) and is represented in the main financial indices (CAC 40, Euronext 100, FTSE Euro 100, MSCI Europe) and non-financial indices (DJSI World, Euronext Vigeo Eiris - Europe 120/ France 20, MSCI EMU ESG screened, MSCI EUROPE ESG Universal Select, Stoxx Europe 600 ESG-X).

ENGIE Group press contact:

Tel. +33 (0)1 44 22 24 35

engiepress@engie.com

✂ <https://twitter.com/ENGIEnewsroom>

Investor relations contact:

Tel. +33 (0)1 44 22 66 29

ir@engie.com

¹ The ENGIE Net Zero Pathway models 15 European countries whose energy systems are highly interconnected and which represent over 85% of Europe's energy consumption.

² https://www.nber.org/system/files/working_papers/w32450/w32450.pdf

<https://www.nature.com/articles/s41586-024-07219-0>