Why does Europe need green molecules?

Accelerating the **decarbonisation** of industry and heavy transport is key to Europe's **energy independence** and industrial **competitiveness**

moeve

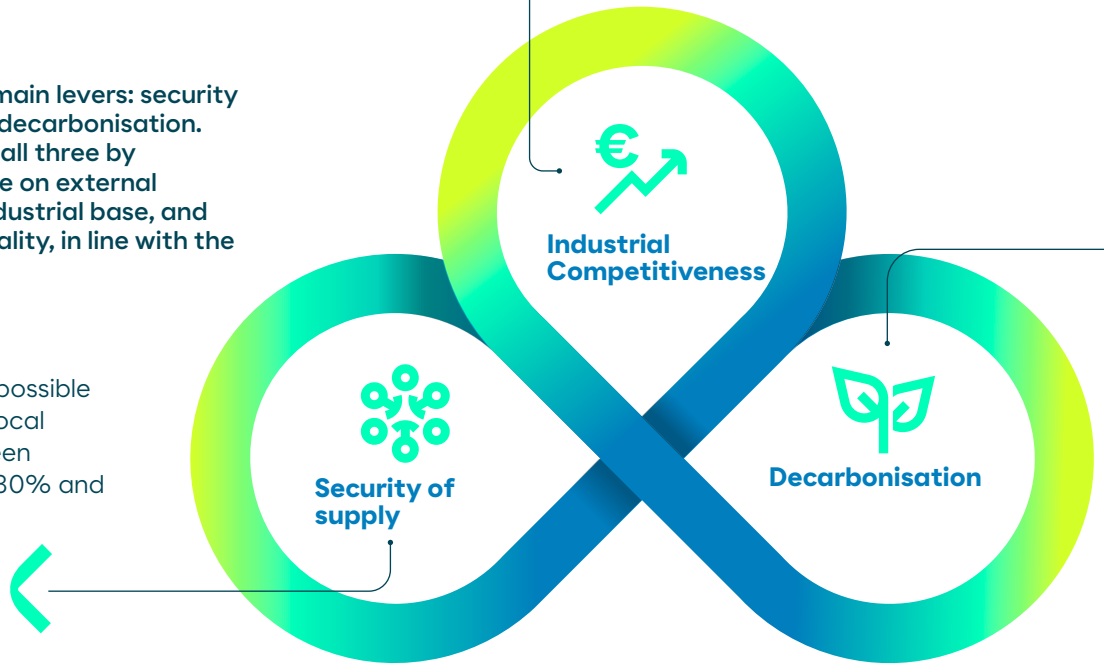
Green molecules are a strategic asset for Europe, strengthening energy security, industrial competitiveness and decarbonisation

The role of green molecules in European strategy

The EU's energy strategy is built on three main levers: security of supply, industrial competitiveness, and decarbonisation. Green molecules play an important role in all three by simultaneously helping reduce dependence on external energy sources, strengthening Europe's industrial base, and supporting progress toward climate neutrality, in line with the main EU policies.

The adoption of green molecules makes it possible to reduce fossil fuel imports and promote local production. It is expected that by 2050 green molecules will be able to replace between 30% and 50% of the current demand for fossil fuels.

Strategic priority of the REPowerEU plan to strengthen the EU's energy autonomy



Green molecules can serve as a driver of European competitiveness and reindustrialization, by enabling the production in the EU of "green products" with a differential market value. This strategy is built on the availability of raw materials and technological expertise.

Central element of the European reindustrialisation agenda and the Clean Industrial Deal

Green molecules are a particularly important solution for the industrial sector, which accounts for more than 20% of greenhouse gas emissions and remains highly dependent on fossil fuels, making it difficult to electrify.

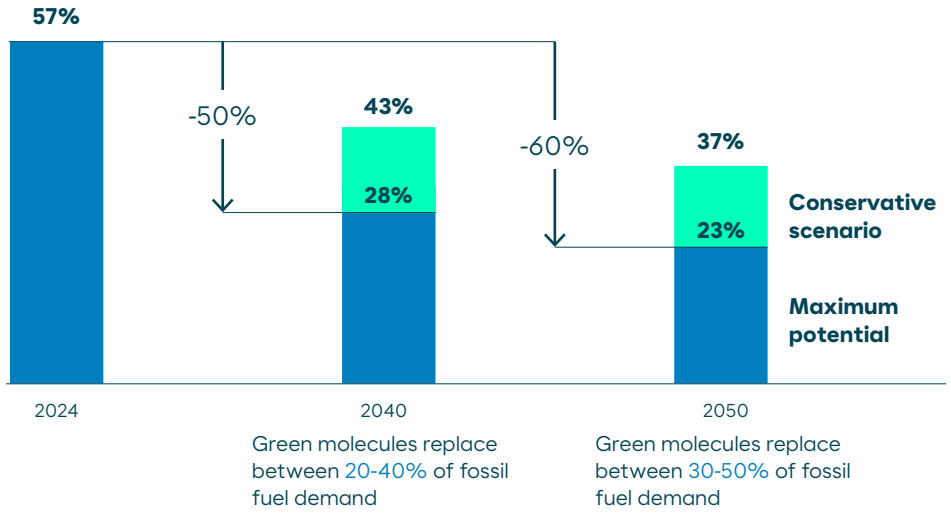
Key lever to achieve climate neutrality by 2050 in line with the Green Deal

Green molecules can reduce the EU's energy dependence and, at the same time, become a driver of growth and industrial leadership

Thanks to green molecules, the EU can reduce its energy dependence by 50% by 2040

At Moeve, we forecast that by 2040, green molecules could replace approximately 20% to 40% of current fossil fuel demand in Europe. The deployment of green molecules would reduce the European Union's external energy dependency by 50%.

EU energy dependence after the rollout of green molecules
(% total demand, 2024)



Note: This analysis does not consider the impact of electrification and assumes a rollout of green molecules in line with decarbonisation targets.
Sources: Eurostat and Moeve analysis

Additionally, European industrial competitiveness will be boosted by green molecules

1.7 million new jobs across Europe

The first pioneering industries in the use of green molecules will create a driving effect that could generate 1.7 million new jobs and increase the GDP of the European Union and the United Kingdom by up to **145 billion euros by 2040**. In that scenario, **Spain will lead this progress**, with **181,000 new jobs** and an impact of **15.6 billion euros on its GDP.**

€730 billion from achieving climate goals

Ignoring climate change in Europe could entail losses of more than €6 trillion over the next 50 years, **while achieving climate goals** could trigger economic **benefits of up to €730** billion

> As the impacts of climate change become more apparent and energy security is put at risk, demand for green solutions will grow, and in a world of decarbonized value chains, Europe can be a world leader.

Maarten Wetselaar

Green molecules are essential to achieving decarbonisation targets, particularly in hard-to-abate sectors

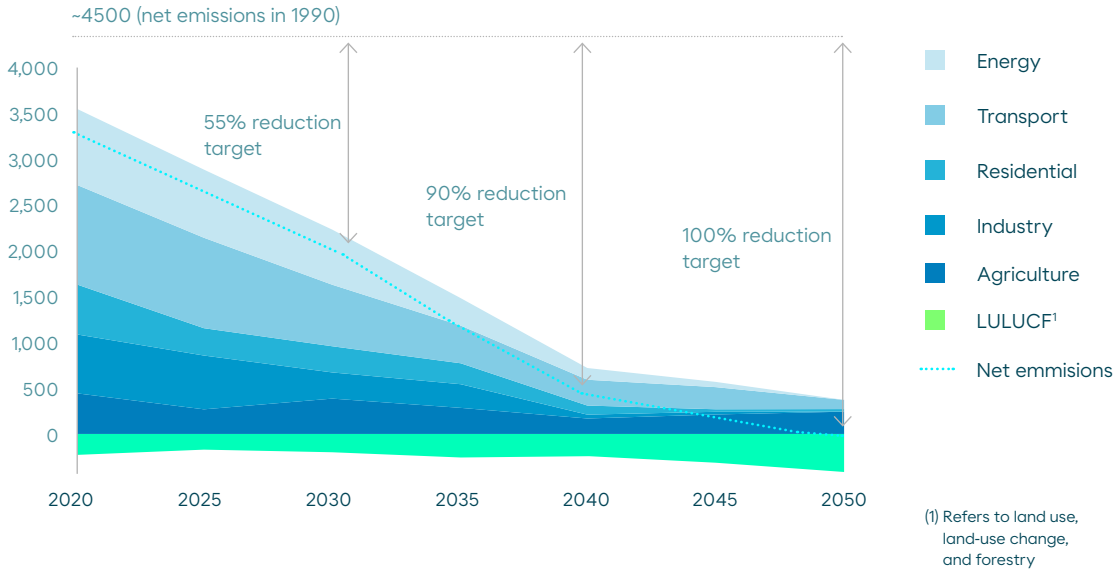
The EU aims to reduce emissions by 90% by 2040, compared to 1990 levels

En los últimos años, la UE ha promulgado varias políticas, como el Green Deal Europeo, el REPowerEU o el paquete Fit for 55, entre otros, para proporcionar las directrices necesarias para avanzar en la descarbonización.

Green molecules have the potential to cut Europe's emissions by up to 22% by 2050

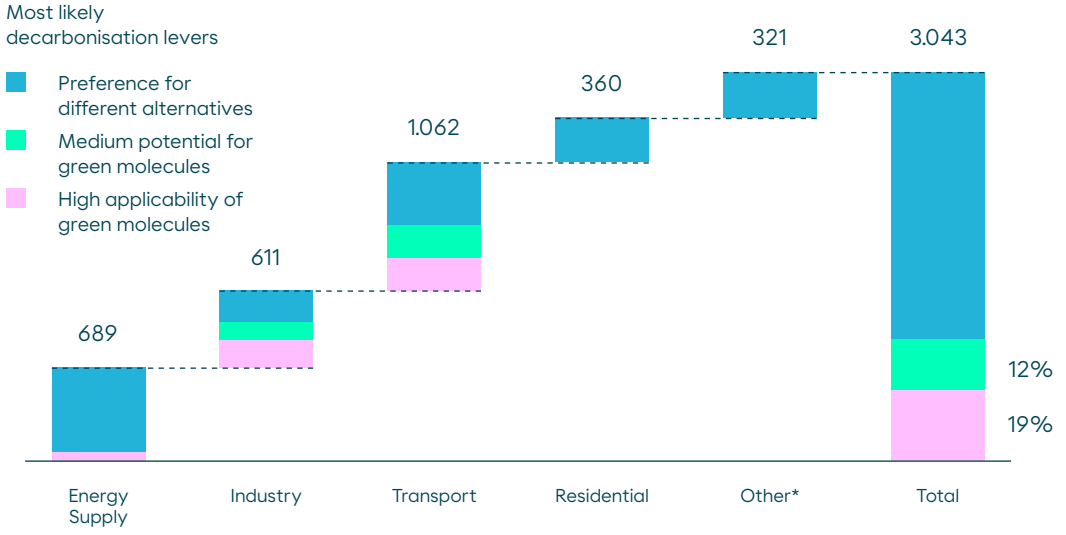
The potential of green molecules could help mitigate nearly 22% of Europe's emissions by 2050, serving as a key lever for decarbonizing hard-to-electrify sectors, which currently account for 31% of emissions in Europe

Decarbonisation projected by the EU (GtnCO$_2$eq/year)



(1) Refers to land use, land-use change, and forestry

EU CO_2 emissions by sector (2024, MtnCO$_2$eq)



Sources: European Environment Agency

(*) Agriculture and other minor sectors

The impact of the green premium on the price paid by the end consumer is minimal when the full value chain is taken into account

Until price parity is achieved, the additional cost of shipping a pair of sneakers using green molecules would be around 50 cents per pair

> To drive green industrialization in Europe, it is essential that policies promote not only supply but also demand in a coordinated manner, to ensure synchronized progress among the different market players.

Assessment of the green premium for key hard-to-abate industries in 2030

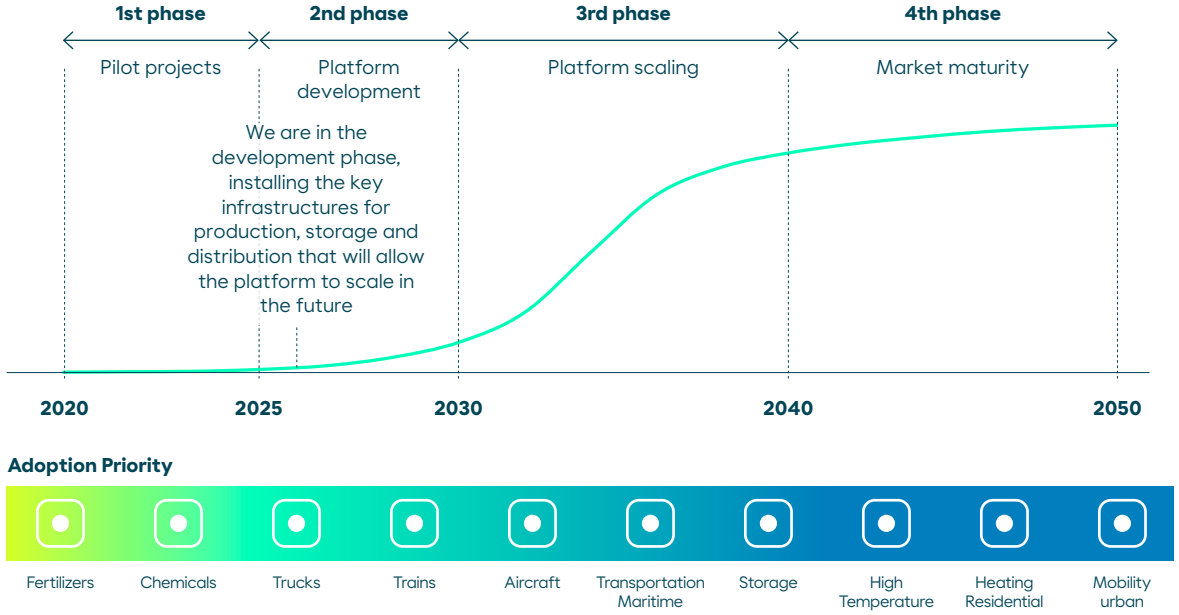
Sectors that are difficult to reduce	Steel Manufacture	Fertilizers	Shipping	Aviation
	Metallurgical coal	**Grey H2**	**Marine fuel**	**Kerosene**
Decarbonisation alternative	Green H2 for the DRI-EAF route	Green H2 / Ammonia in Urea Plant	Biofuels together with e-methanol and ammonia vessels	Bio-based and green hydrogen-based
Impact of the green premium	**1-2%** Passenger car	**1-5%** Wheat and corn	**1-4%** Retail Price	**1-5%** Ticket price increase

It is necessary to accelerate the adoption of green molecules and narrow their competitiveness gap

- **Market-creating regulation:** Mandatory targets, usage mandates, certification schemes, and stable frameworks that stimulate demand and provide long-term visibility.
- **Economic support to reduce the extra cost:** Subsidies, tax incentives, contracts, and carbon pricing mechanisms that help offset the green premium in the early stages.
- **Innovation and technological development:** Improvements in production, storage, and transport that lower costs and improve the efficiency of green molecules.
- **Collaboration and market scaling:** Public-private partnerships, long-term offtake agreements, and the prioritization of strategic projects to unlock economies of scale and reduce uncertainty.

The groundwork must be laid during this decade for a solid platform that will enable the accelerated deployment of hydrogen in the following decade

We are currently installing the necessary infrastructures that will allow the platform to be scaled



Scaling the platform will depend on being able to overcome four key challenges

Required investments: The promotion of these technologies requires mobilizing capital for infrastructure, innovation and industrial scaling.

Sustainable supply of raw material: Ensuring sufficient and sustainable sources of biomass, waste, waste oils and CO_2 will be essential to consolidate this growth.

Infrastructure development: Expanding the production, transportation, and distribution capacity of hydrogen, ammonia, and methanol will be a key enabler of the transition.

Cost competitiveness and user willingness to pay: Progressive cost reduction will be key to accelerating consumer adoption

Thank you