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Europe's energy transition: an expensive change of dependence



Europe has reduced its exposure to Russian energy, but has not yet achieved energy independence.

The continent has exchanged part of its reliance on Russian pipeline gas for greater dependence on imported LNG, especially from the United States, while household and industrial energy costs remain structurally high.

The energy transition has expanded low-carbon generation, but it has not reduced the import, infrastructure, balancing or affordability problems embedded in Europe's energy system.

Europe's energy transition is often presented as a route to lower energy costs, greater security of supply and strategic autonomy. Its record is certainly mixed.

The European Union reduced its exposure to Russian gas but did not reduce its dependence.

Russian supplies fell from about 152 billion cubic metres (bcm) in 2021, 45% of EU gas imports, to 36 bcm in 2025, or 12% of imports.

However, reducing reliance on Russia is not the same as eliminating dependency.

In 2025, Russia's gas exports to the EU were stable at around 36 bcm, a mix of pipeline flows and LNG.

According to CREA, the EU remains the largest buyer of **Russian liquefied natural gas** (LNG), accounting for almost half (49%) of Russia's total LNG exports, followed by China (24%), Japan (18%), and South Korea (6%).

The EU is also the largest buyer of Russian pipeline gas, purchasing 32% of Russia's pipeline gas exports, followed by China (31%), and Türkiye (29%). We must also highlight that volumes from Turkey are often Russia origin-washing.

The EU has approved a full withdrawal from Russian gas. **LNG imports** under long-term contracts are scheduled to end by 1 January

2027 and remaining pipeline imports by 30 September 2027.

This policy commitment is expected to be extended due to the impossibility of enforcing it, and it is not evidence that the dependency has already disappeared.

A redistribution of strategic dependence

Europe's key problem is therefore not simply that it purchases hydrocarbons from Russia. It is that it remains a major importer of hydrocarbons.

The supplier mix has changed, but the structural exposure to global gas markets and international commodity-price shocks remains.

The central change in Europe's gas system has been the replacement of relatively cheap and predictable Russian pipeline gas with a more expensive, globally traded, LNG-based supply model.

In 2025, **EU gas imports** reached 289 bcm, up 5% from 273 bcm in 2024. Pipeline imports declined to 158 bcm, while LNG imports rose to 131 bcm, accounting for 45% of total EU gas imports.

LNG's growing share provides flexibility, but it also links European buyers more directly to a worldwide market in which cargoes compete with Asian demand and are influenced by geopolitical risk.

The EU is less exposed to Russia, but considerably more exposed to US LNG production

The United States has become the essential supplier in this new system. It supplied 56% of the EU's LNG imports in 2025, ahead of Russia at 13.9% and Qatar at 8.9%.

The Commission's 2025 market data show that

the United States supplied 76 bcm of EU gas imports, one-third of the total, while Norway supplied 89 bcm, another third.

This is not an energy transition but a redistribution of strategic dependence.

The EU is less exposed to Russia, but considerably more exposed to US LNG production, transatlantic shipping and American policy choices. Dependence on a Western supplier may be preferable to dependence on Russia, but it is still dependence.

The vulnerability is clearest in a tight global LNG market. European buyers must outbid other importers for available cargoes.

If Asian demand rises, liquefaction facilities suffer outages, shipping routes are disrupted or US production becomes constrained, Europe faces higher prices regardless of how much wind and solar capacity it has installed.

The competitiveness gap

The EU energy transition has also not fulfilled the promise of structurally cheap energy for end consumers.

In the second half of 2025, the average **EU household electricity price** was €28.96 per 100 kWh.

Prices for households are three times higher than in the United States, and have risen sharply over the past decade, outpacing the previous pre-transition trend.

Germany illustrates the problem. It charged one of the highest household electricity prices in the European Union, at €38.69 per 100 kWh in the second half of 2025.

Germany has added large amounts of renewable capacity, but the final bill paid by consumers reflects more than just the marginal cost of wind or solar generation.

It includes network charges, taxes, levies, VAT,

system-balancing expenses, back-up capacity, grid expansion, curtailment, storage and retail-market costs.

Electricity intensive sectors cannot compete internationally against producers that enjoy lower gas prices

For industry, the picture is similarly difficult. The EU average price for non-household electricity consumers using 500–2,000 MWh annually was €18.37 per 100 kWh in the second half of 2025.

Germany's equivalent price was €22.64 per 100 kWh, among the highest in the EU.

Even after prices declined from the 2022 crisis peak, the European Commission acknowledges that industrial gas and electricity prices remain two to four times higher than those of the EU's main trading partners.

This is not just a consumer and affordability problem. It is an industrial policy problem.

Electricity intensive sectors cannot compete internationally against producers that enjoy lower gas prices, lower power costs, more domestic energy resources and less expensive network and tax systems.

Europe may be reducing emissions per unit of production, but this is the result of industrial decline, not improved efficiency, and it is making domestic production less competitive.

The result is industrial displacement, not a global reduction in emissions.

The full cost of a reliable power system

The energy transition debate often focuses on the cost of generating one additional megawatt-hour from wind or solar.

This is not the same as the cost of providing

reliable electricity to households and factories every hour of the year.

Wind and solar can reduce fuel consumption and lower wholesale electricity prices during periods of strong output.

However, a power system with a growing share of weather-dependent intermittent and volatile generation also requires major investment in **transmission and distribution networks**, balancing services, reserve capacity and flexible generation.

These costs do not disappear because the wind and sun are “free”. They move elsewhere in the system.

A power grid designed around centralised, dispatchable plants is being redesigned for millions of smaller, intermittent, volatile and more geographically dispersed installations.

Transmission must connect offshore wind, remote wind regions and large solar clusters to industrial demand centres.

Distribution networks must support decentralised photovoltaic generation, electric vehicles, heat pumps and electrification. Grid congestion becomes the norm. Costs rise. Consumers pay.

The challenge becomes a crisis when conventional dispatchable capacity, like nuclear and hydro, is closed.

The transition did not end Europe's use of imported coal

Gas plants remain necessary for flexibility and security of supply, but their economics worsen when they operate fewer hours. The system therefore needs to pay for capacity availability.

This is one reason why a focus on low marginal-cost renewable output ignores the full cost of a reliable power system.

The question is not whether renewables are technologically useful. They are. The question

is whether policy has internalised the total cost of a secure, affordable and dispatchable system.

The reality is that the system cannot operate without imposing excessive bills on consumers and industry.

The transition also did not end Europe's use of imported coal. Russian coal imports were banned, but coal consumption and imports did not vanish.

In 2025, Australia supplied 32.0% of **EU coal imports**, the United States supplied 31.7%, and Colombia supplied 12.8%.

The United States was the EU's largest coal supplier in the second quarter 2025, accounting for 35.3% of imports.

Use of coal in energy in Europe has remained significant. It declined from 24% but remains at a stubborn 9% of the energy mix after hundreds of billions in support mechanisms for renewables.

Coal's role is particularly relevant when Europe faces high gas prices, low wind and solar output, weak hydroelectric generation or nuclear outages. In such situations, coal reappears as a system stabiliser despite climate objectives.

Moving beyond ideology

Europe should not treat this record as an argument against renewables. Wind, solar, hydroelectricity, nuclear power, efficiency and electrification all have important roles in a resilient energy system.

Instead, it should be taken as an argument against the ideologisation of energy.



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Importing LNG from friendly nations is not energy independence. It may be geopolitically preferable to importing from Russia, but Europe remains vulnerable to international gas prices and supply disruptions.

Renewable capacity does not guarantee lower final prices. The relevant metric is the all-in cost of reliable electricity including generation, grids, balancing, reserve capacity, storage, taxes, levies, and regulatory costs.

Decarbonisation cannot succeed if it destroys industrial competitiveness and persistently raises household energy bills.

Europe cannot base its transition on the assumption that businesses and households will indefinitely absorb higher energy costs in exchange for long-term promises.

Households continue to pay higher prices than in the US and other peers, and industry faces a competitiveness gap with the EU's major trading partners, especially the US.

The European energy transition has not delivered independence, real affordability or a fully reliable low-carbon system.

The European Union must abandon ideology and return to a policy based on an affordable, competitive and diversified energy system.