



POWER BY GIGAWATTS: THE RISE OF EUROPE'S ENERGY FREEDOM

Energy is now a tool of decarbonisation, competitiveness and strategic independence. Europe's response to the cleantech race is evolving but the challenges are immense. Building strategic muscle and bridging the scalability gap requires an industrial transformation in Europe that localises production, decentralises generation, and builds strategic depth in every region.

Today, power is no longer measured in tanks but in gigawatts. Not in barrels, but in batteries. Sovereignty now pulses through the cables of clean energy, flows through local supply chains, and is stored in the courage to lead the clean technologies manufacturing. Europe stands at a historic crossroads. The geopolitical shocks of the past few years – from war in Ukraine to inflationary energy markets – have made it abundantly clear: energy is not merely a utility, it is a tool of decarbonisation, competitiveness and strategic independence. As renewables grow and gas pipelines shrink, Europe's geopolitical posture is transforming. But the road to energy freedom requires more than decarbonisation. It demands industrial courage, political unity, and societal resilience.

A continent in transition: some numbers behind the shift

In 2024, renewables accounted for 47.3% of Europe's electricity mix, a notable rise from 43.9% in 2023. Solar generation reached 11%, overtaking coal for the first time, while fossil fuels fell below 30%. These are not just energy statistics, they are indicators of a shifting balance of power. Russia's share of European Union (EU) gas imports, once above 40%, dropped to under 19% in 2024. Pipeline gas now accounts for just 11%. New Liquefied Natural Gas (LNG) sources from the US (which has just signed 15% tariffs for our European companies), Norway, and Algeria filled the void, as shown in Figure 1. But with new supply come new dependencies. To overcome this "make or break" dilemma, Europe must now choose: scale or fail.

Move from vulnerability to strategic value chains

While fossil dependence wanes, new forms of risk are emerging. Over 80% of the EU's solar panels are imported from Chi-

na, which also dominates the global processing of lithium, cobalt, and rare earth elements. These materials are critical to electric vehicles, wind turbines, and energy storage. In a context where the US is playing "hero or villain" on the global trade scene, changing gas dependency of Russia by gas dependency on US is like changing one cloak for another. The EU's response to the cleantech race – through the Critical Raw Materials Actⁱ and the Clean Industrial Dealⁱⁱ – a passport to economic competitiveness and strategic autonomy – is now stimulating cleantech investors' appetite in our continent. But the

challenge remains immense. In Europe we need to adjust policies at Member State level, speed up procedures, and ramp up our manufacturing capacity: new refining hubs, circular material systems, and alliances with trusted suppliers in Latin America, Canada, and Africa, as well as more domestic production within the EU, namely build here the factories of the future, such as: green steel, green fertilisers, or plastic recycling. All at the same time, in a race around the clock. Europe also needs industrial transformation from within. Our factories are decarbonising. In 2023, industrial energy use fell by 5.3%, extending a 30-year trend. For the

FIGURE 1. VOLUME OF GAS IMPORTED BY THE EU, 2021 VS. 2024 (in billion cubic meters)

Source: European Commission, available at: www.consilium.europa.eu/en/infographics/where-does-the-eu-s-gas-come-from/

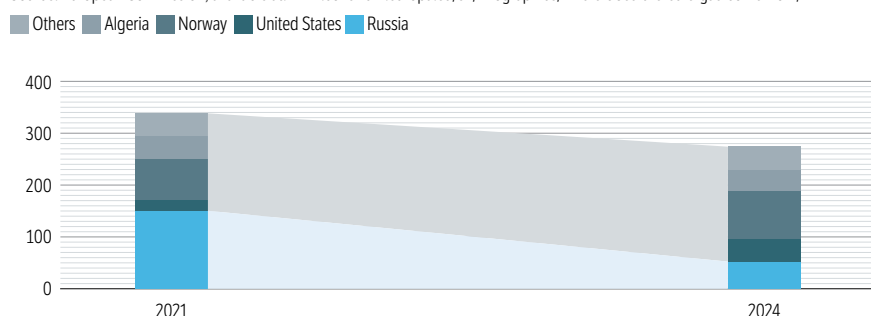


FIGURE 2. FINAL ENERGY CONSUMPTION IN THE PAPER, PULP AND PRINTING INDUSTRY BY ENERGY PRODUCT IN THE EU, 2023 (in petajoules)

Source: Eurostat, 2025. Available at: <https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20250725-1>

Legend: Natural gas, Electricity, Renewables and biofuels, Oil and petroleum products (excluding biofuel portion), Heat, Solid fossil fuels, Non-renewable waste

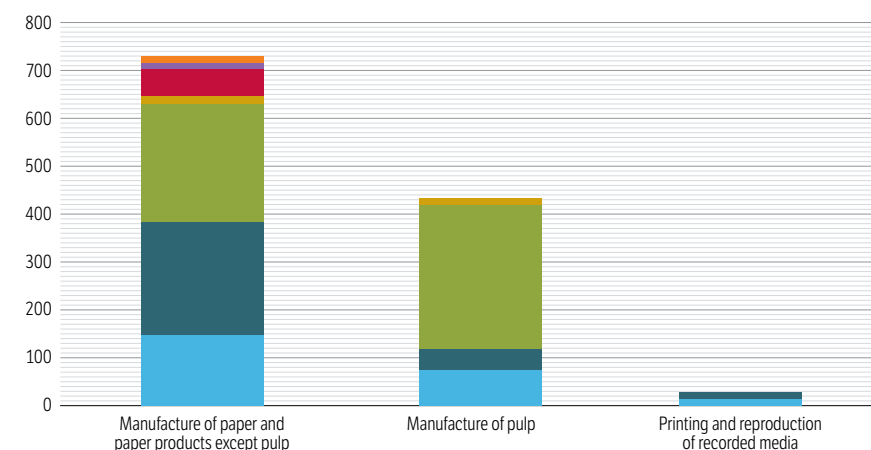
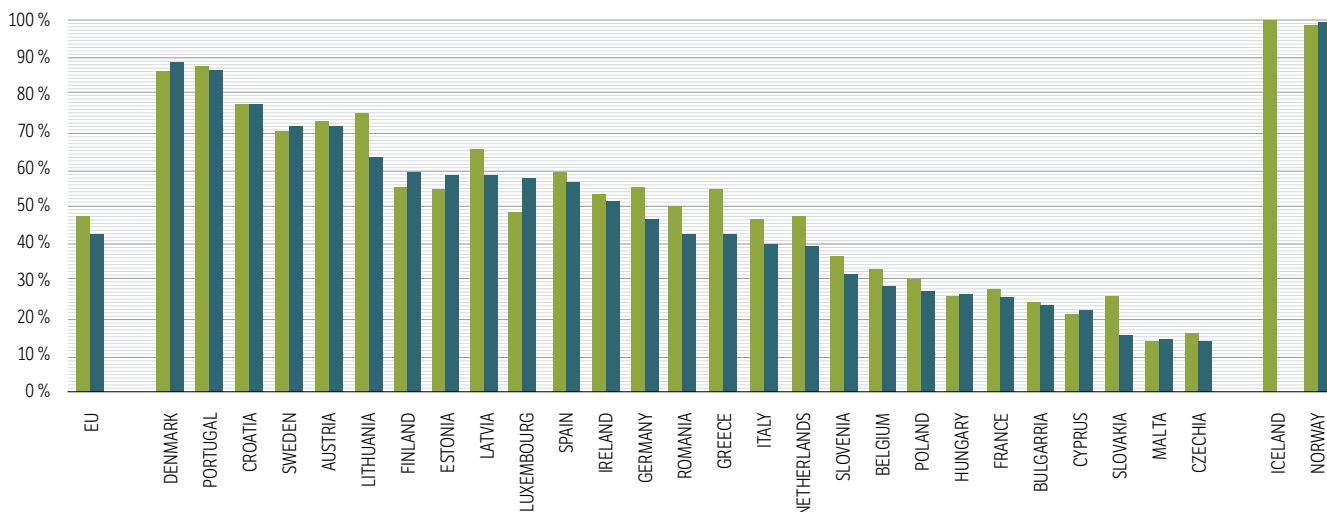


FIGURE 3. SHARE OF RENEWABLES IN NET ELECTRICITY GENERATION, 1ST QUARTER OF 2024 AND 1ST QUARTER OF 2025

Note: Country ranking is based on first quarter of 2025, highest to lowest.

Source: Eurostat, 2025. Available at : <https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20250619-2>

■ 1st quarter of 2024 ■ 1st quarter of 2025



first time, renewables and biofuels (33.9%) became the leading source of energy in the paper industry, overtaking electricity (32.6%) and gas (20.3%).

According to Cleantech for Iberia's report "Direct Electrification of Industry in Spain"ⁱⁱⁱ, less than 25% of industrial heat demand in Spain is currently electrified. Full decarbonisation will require clean heat solutions, such as industrial heat pumps, electric boilers and thermal storage. We have the technology; we just need to scale. Europe is standing still in the cleantech race. But others are now moving faster. Bridging the scalability gap – our Achilles' Heel – requires public guarantees, fast-tracked permitting, simplification and industrial cluster development. Fast.

Grids and flexibility: the energy transition backbone

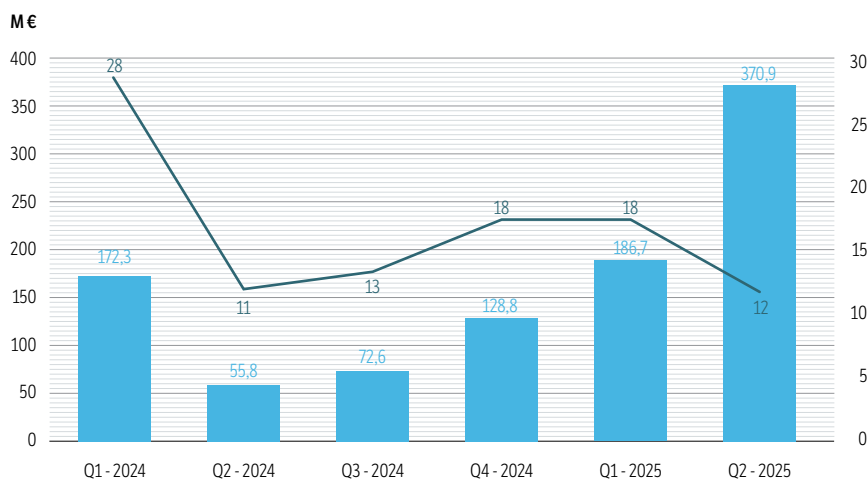
The 2025 dip in renewable generation – caused by lower wind and hydro – highlighted the system's fragility. Clean electricity must be flexible to be reliable. Long-duration storage, cross-border interconnections, and digital demand response are essential.

Over 40% of Europe's distribution grids are over four decades old. The European Commission estimates that €584 billion is needed by 2030 for grid investment. Without this, the transition will stall. A continental "Grid Deal" is not just an energy issue – it is an economic and security necessity – and also a strategy anti-blackouts.

FIGURE 4. CLEANTECH INVESTMENT IN THE IBERIAN PENINSULA, 2024-2025

Source: Cleantech for Iberia: Iberia Q2 2025 Briefing, available at <https://shorturl.at/KaPsy>

■ Amounts invested 2024 (Million €) — Deal Volume



Cleantech capital: the investment challenge

Europe's cleantech sector raised €11.3 billion in 2023, according to Cleantech for Europe. But this is still behind China and the U.S., which have mobilised state-backed funding at unprecedented scale. The U.S. Inflation Reduction Act, for instance, unlocked over \$370 billion.

Europe must use every financial lever: green procurement, strategic subsidies, de-risking tools, and future-focused taxonomy reform. Venture capital is only one piece of the puzzle. What's needed is deep industrial financing that supports gigafactories, circular supply chains, and infrastructure upgrades.

Iberia: from periphery to prototype

In this shifting landscape, the Iberian Peninsula stands out – not as an exception, but as an example. As shown in Figure 3, Portugal sourced 86.6% of its electricity from renewables in Q1 2025, one of the highest shares in the EU. Spain reached 55.8% in 2024.

Cleantech investment in the region hit a record €370.9 million in Q2 2025, nearly doubling Q1, according to Cleantech for Iberia (Figure 4).

But Iberia is doing more than generating clean power. It is manufacturing electrolyzers, electrifying industrial clusters, and building digitalised grids. It is forging partnerships across borders and



proving that energy sovereignty is not a theory – it's a strategy.

Also, in economic terms Iberia has changed roles, with economic growth in Spain and Portugal at 0.7 and 0.6 percent respectively, compared with 0.1 percent decline in both Germany and Italy. Economically it is Iberia where the sun currently shines within the EU.

People power: the social side of sovereignty

But the energy transition is not just about megawatts – it's about meaning.

Communities across Europe are establishing energy cooperatives, retrofitting buildings, and participating in local energy markets. This bottom-up momentum is reshaping the relationship between citizens and the state.

Yet social license must be earned. A just transition must include rural populations, vulnerable households, and future workers. According to the European Investment Bank, over 75% of EU citizens support clean energy^{iv}, but trust in delivery varies widely and “not in my backyard” trend is often gridlocking cleantech deployment. As a society, we urgently need more co-ownership of the change.

The decade that defines us

This is Europe's moment. Not only to decarbonise, but to reindustrialise. Not only to overcome crises, but to build strategic muscle.

The coming decade will define Europe's role in the world. Will we become a clean superpower or remain an industrial colony? Will we shape the rules of the clean energy era – or import them?

It is time for Europe to move from a catching-up to a leadership mindset. For this to happen, Europe must scale the ambition. Because real power is no longer measured in barrels. It's measured in gigawatts – and in the courage to act. Europe's energy transformation is not just technical. It speaks to who we are, what we value, and how we want to live. A continent that once defined itself through industrial might and fossil dependency now has the chance to write a new story, powered by clean energy and driven by purpose. To lead in this century, Europe must become more than a clean energy consumer. It must become a clean energy producer, innovator, and exporter. It must localise production, decentralise gene-

ration, and build strategic depth in every region – from the sunlit valleys of Iberia to the wind-swept plains of the North Sea.

Leadership will come not from those who wait, but from those who build. Those who take risks, align capital, empower citizens, and scale ecosystems. Europe's ability to act with clarity and ambition will determine its freedom, its prosperity, and its role in the global order.

This is a time for high-voltage vision and bold execution. A time for unity among Member States, ambition from industries, and trust from society. It is a moment where every decision echoes across generations.

The true value of energy autonomy is now measured in gigawatts, and this is also our ability to protect our climate, our economies, and our communities from the shocks of dependency.

Imagine a continent where local supply chains hum with innovation, where public buildings generate their own electricity, where industrial parks emit zero carbon and maximum potential. Where energy bills fall not because of market subsidies, but because systems are smarter, more efficient, and under our own control.

We are not starting from scratch. Europe already leads in energy efficiency, offshore wind, and advanced climate regulation. What we now need is the courage to match our innovation with infrastructure, and our ambition with execution.

Energy strategic autonomy is no longer an aspiration – it is an imperative. ●

Notes

ⁱ The Critical Raw Materials Act (CRMA), formally Regulation (EU) 2024/1252, is an EU law that aims to secure the supply of critical raw materials essential for the EU's green and digital transitions. The CRMA entered into force on May 23, 2024. More information: <https://shorturl.at/pRPmS>

ⁱⁱ The Clean Industrial Deal is a business plan to support the competitiveness and resilience of European industry and was approved in February 2025. More information: https://commission.europa.eu/topics/eu-competitiveness/clean-industrial-deal_en

ⁱⁱⁱ Cleantech for Iberia (2024). Direct Electrification of Industry in Spain: Opportunities and Challenges for the Agri-Food Sector. Report, October 2024. Available at: <https://shorturl.at/qAOOn>

^{iv} EIB Climate Survey 2021-2022. Available at: www.eib.org/en/surveys/climate-survey/index