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Iberian blackout aftermath: The battery revolution. Installed capacity increases by more than 500%.

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Equipo que ha desarrollado este documento: Raquel Paule, Maribel Núñez, Ismael Morales, María Manzano, Hannah Fakir, Luisa Castillo, Gonzalo Gómez, Alejandro Tena, Diego Ferraz y Alexandra Llave.

Fundación Renovables
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Calle Santa Engracia 108, 5º Int. Izda.
28003. Madrid
www.fundacionrenovables.org

Iberian blackout aftermath: The battery revolution. Installed capacity increases by more than 500%.

- Installed battery storage capacity has grown by 589% between April 2025 and April 2026, going from 28 MW to 193 MW.

- Storage linked to self-consumption surged by 119% with the residential sector being the one with the fastest registered growth since the blackout.

- In 2025, 5.414 GWh of electricity generated through renewables was discharged due to grid saturation. This means an amount of electricity superior to Extremadura's annual electricity demand (4.982 GWh) went to waste.

It has been a year since the Iberian blackout that shocked Europe. April 28th 2025 marked a turning point for our electric system, one that showed vulnerabilities that had to be addressed: failures related to grid operation, voltage management, and the system's automatic response to disturbances. But it also provided insights and lessons. The most important one being the need to accelerate the energy transition by strengthening the entire system's stability, robustness and resilience.

The event that shook up the energetic and political landscape, only left us with two very paths available: Either coming back to a familiar past, with dependance on fossil

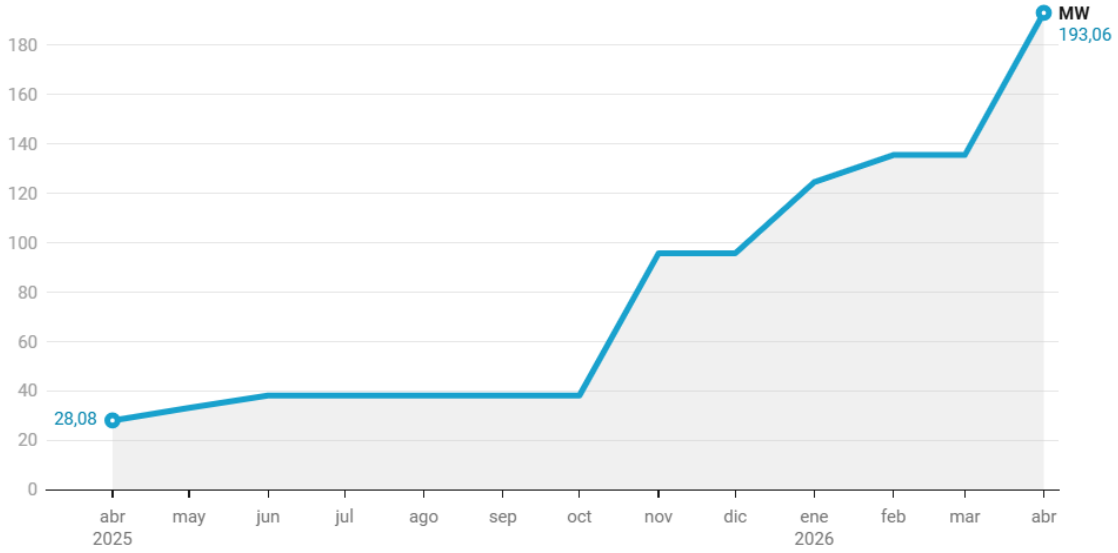
energy and hopping on the anti-renewable bandwagon or pushing for decarbonization and clean energy deployment. With work still to be done, Spain chose the second path.

Thanks to the blackout, we have been able to accelerate battery deployment to provide the grid with more security and stability while, at the same time, protecting the profitability of photovoltaic facilities, as we have strongly advocated for.

Data from Spain's TSO (REE) indicates that back in April 2025 installed battery storage capacity was 28 MW. One year later, in April 2026, installed capacity increased by 589%, upping the number to 193 MW.

Potencia instalada de almacenamiento con baterías

Evolución tras el apagón, entre abril de 2025 y abril de 2026.



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When it comes to self-consumption, demand for storage facilities (what is commonly called behind-the-meter storage), increased by 119% in 2025, going from 155 MWh to 339 MWh, according to data from APPA Renovables.

Battery installation for self-consumption has increased 155% in the residential sector and 95% in commercial/industrial sector. There has been a significative increase in the domestic sector, but the impressive growth in the industrial sector is nothing to sneeze at. Being that only two years earlier, in 2023, installed storage capacity linked to self-consumption for industrial purposes was that of 0 MWh.

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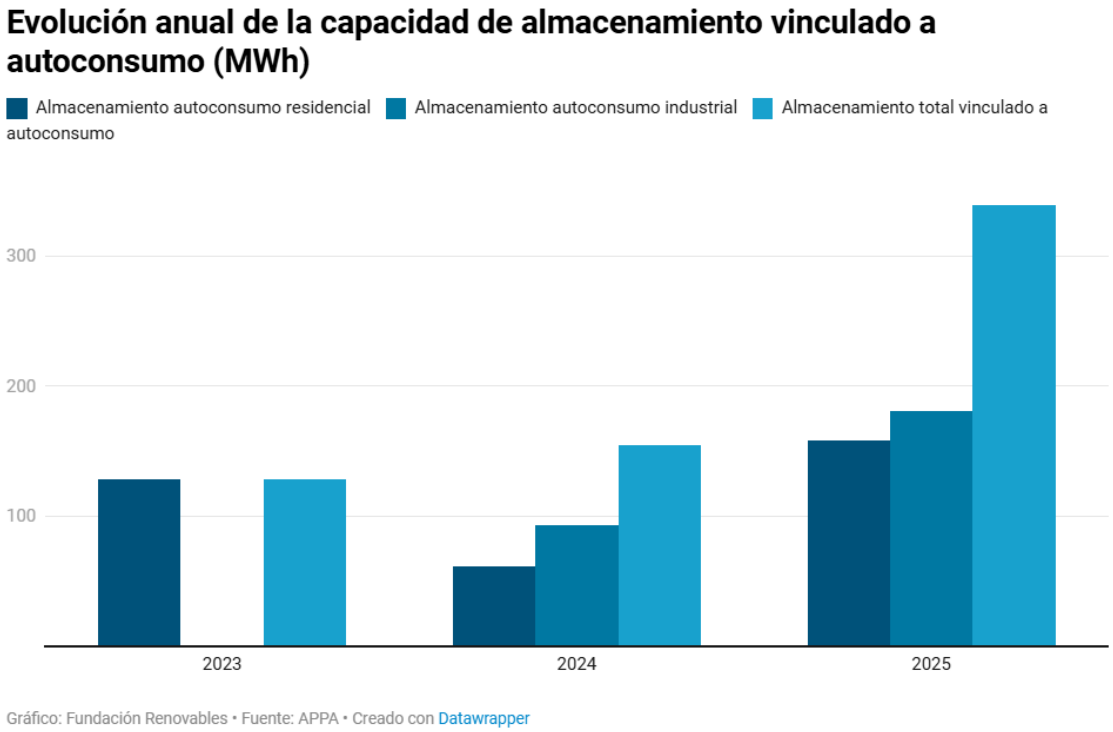
This data confirms that energy self-consumption is not only seen as a tool for efficiency or decarbonization, but a powerful asset against energy risk. It has been shown that the combination of distributed generation and storage allows to reduce market dependency, as well as mitigating price volatility and securing the continuity of operations.



Other steps forward…

The oversight and control of the electricity system have been another positive change brought about by the blackout. Mechanisms and protocols have been established for all electricity market participants, requiring greater transparency and real-time data; for example, the inspection capacity of the National Commission on Markets and Competition (CNMC) has been strengthened; and operational procedures have been modified so that renewable energy plants can implement ramp-up and ramp-down controls to prevent cascading failures. In addition, renewable energy sources have begun to control voltage through grid forming, a long-standing demand of the renewable energy sector.

A few months after the blackout, the Spanish Ministry of Energy Transition released a proposal to develop the electricity transmission grid for the period 2025–2030. This new roadmap prioritizes investments of nearly 13.6 billion euros to integrate renewable energy, improve interconnections, and support industrial electrification.

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The plan aims to establish a decarbonized system with 81% of renewable in the energy mix by 2030.

There have been some other measures to electrify the demand. The Royal Decree approved in November 2025, which reinstated the measures from the failed Royal Decree-Law 7/2025, encouraged the connection of new economic activities—primarily industrial ones—to the grid.

That provision also sets a five-year expiration period for on-demand access and connection rights, with the aim of preventing hoarding and speculation. Another important measure is the shortening of response times for distributors when implementing network expansions, such as those for charging electric vehicles.

The negative side…

As good as these measures sound, not all the steps taken over the past year have been positive for the energy transition. Following the blackout, REE activated a backup system designed to provide greater stability and security for the power grid. However, this mechanism relied on an increased use of combined-cycle gas turbines to generate electricity. Unfortunately, this has become the new normal.

Electricity generation from natural gas surged by 50% between May and December of 2025. However, in recent weeks, there has been a significant reduction in the cost of balancing services, as more renewable energy sources are beginning to perform voltage control functions.

In any case, the major electric companies, which own the combined-cycle plants, have benefited from the reinforcement mechanism, burning more gas and, consequently, generating higher revenues. As expected, CO2 emissions from the electricity sector have surged by 9% over the past year, representing 2,444,735 metric tons of CO2 equivalent more than the previous year, as confirmed by the report published by the Spanish Sustainability Observatory (Observatorio de la Sostenibilidad).

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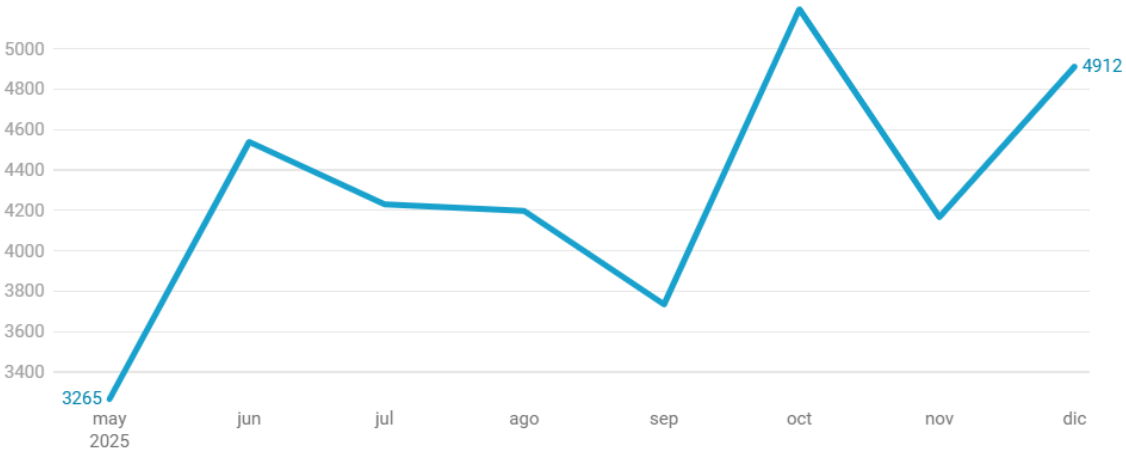
Generación de electricidad con gas a través de ciclos combinados tras el apagón del 28 de abril (GWh)



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The increased use of gas to secure the grid has had an impact on households, particularly on bills in the regulated market (PVPC). The rise in costs has doubled: balancing services have gone from €0.017/kWh in February 2025 to €0.029/kWh in February 2026.

The blackout also highlighted that our electricity system remains largely isolated from the rest of Europe. A year later, commercial exchange capacity with the European system still accounts for only 4% of Spain's installed generation capacity, a percentage that falls below the minimum recommended by Brussels. Therefore, strengthening interconnections with neighboring countries stands out as one of the most important investments to be made in the coming years.

In this regard, increasing interconnections with France is a priority. It should be noted that in 2025, work began on the underground section of the submarine interconnection with France across the Bay of Biscay, a 400-kilometer interconnection that will increase exchange capacity from 2,800 MW to 5,000 MW.

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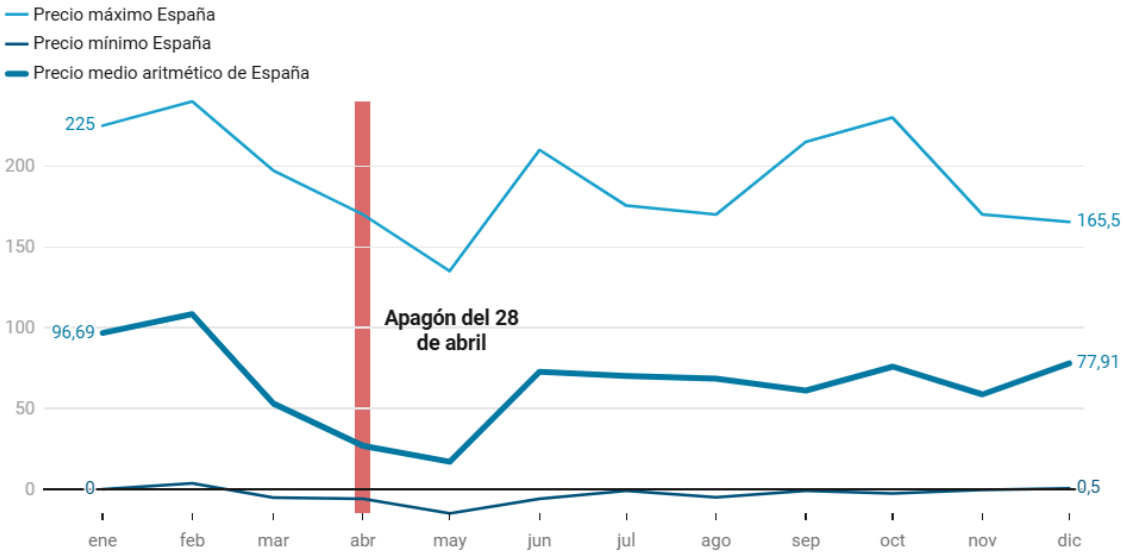
Evolución del precio de la electricidad en el mercado mayorista en 2025 (EUR/MWh)



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The work ahead…

Reducing dependence on natural gas and accelerating electrification in key sectors such as transportation, industry, and heating and cooling is a crucial and decisive step that Spain must take moving forward. Despite the expansion of renewable energy, more than 70% of the country's total energy consumption still relies on fossil fuels. Gas and oil imports alone cost more than 51 billion euros last year.

The war in the Middle East has reinforced the role of renewables as a strategic alternative to reduce exposure to fossil fuels and geopolitical volatility. But demand electrification is still needed. However, the good news is that this massive electrification is more feasible than it seems. With only three technologies—renewable energy, electric vehicles, and heat pumps—which are already mature in Spain, two thirds of fossil fuel consumption could be easily eliminated.

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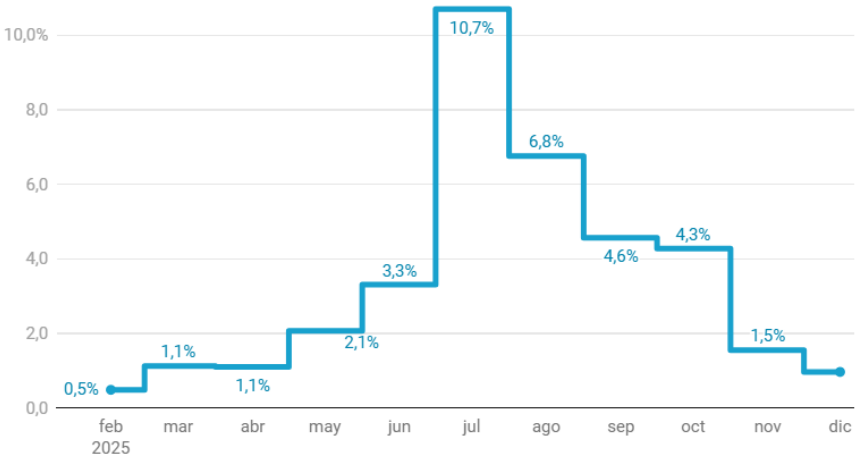
Porcentaje de vertidos y 'curtailments' de energía renovable en 2025



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Although 2025 saw positive results in electricity generation from renewable sources, grid congestion issues also became evident, forcing a significant portion of the electricity generated by these technologies to go to waste. On average, 3.11% of renewable electricity had to be curtailed because it could not be integrated into the grid. There were even periods in the year, like July, when the percentage of renewable curtailments rose above 10%. This is partly due to the technical grid restrictions implemented following the blackout. In total, 5,414 GWh of electricity generated from renewable sources was wasted. This amount of electricity exceeds the annual electricity demand of some of the country's regions, such as Extremadura (4,982 GWh), Navarra (4,873 GWh), Cantabria (3,896 GWh), or La Rioja (1,571 GWh).

This excess of curtailment highlights the need to promote and accelerate the deployment of storage, especially in hybrid configurations, to ensure that all generated electricity can be consumed and to cover time slots when renewable production drops. Although installed battery storage capacity has grown by more than 500% since the blackout, Spain lags behind the rest of Europe, far behind Germany, Italy, and the United Kingdom, all of which have several gigawatts of installed capacity.

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