# Spain experiences major power outage as renewable energy integration sparks debate



Spain experienced a widespread power outage on 17 April 2024, plunging millions across the country and neighbouring Portugal into darkness and triggering significant disruption to daily life and services. The blackout, which began around 12:30 pm local time, led to the shutdown of traffic lights, shops, railway stations, and airport operations, causing widespread chaos in cities including Madrid, Barcelona, Valencia, and Lisbon.

The Spanish government declared a state of emergency amid the crisis and deployed 30,000 police officers nationwide to manage the security situation and maintain order. Dramatic scenes were captured showing long queues outside shops, banks, and petrol stations as residents and tourists rushed to stockpile essentials and withdraw cash during the blackout. Public transport ground to a halt, with trains and metro services suspended; some passengers were left stranded in tunnels and on railway tracks. Lisbon’s main airport temporarily closed, with flights suspended.

Spanish Prime Minister Pedro Sanchez addressed the nation, stating that the cause of the outage was still under investigation but that hydroelectric power plants had been reactivated, which was expected to help restore the electricity supply across Spain soon. He urged citizens to stay informed via official channels and assured that no security or civil protection issues had been identified. Meanwhile, Portugal’s acting Prime Minister Luis Montenegro indicated the country anticipated power restoration within hours but acknowledged it might take longer than in Spain due to Portugal’s reliance on its own resources, unlike Spain which also receives electricity from France and Morocco.

The blackout is believed to have been caused by an “exceptional and extraordinary” event involving “strong oscillations” in the electrical grid, attributed by Spain’s power distributor Red Electrica and Portugal’s grid operator REN to “extreme temperature variations” in the interior of Spain. However, these explanations have raised queries, given the mild weather conditions of around 22°C (68°F) at the time, which some experts have described as unlikely to cause such instability.

One point of significant focus has been Spain’s transition to renewable energy, with the country having one of Europe’s highest proportions of renewables—averaging 56% of electricity generation, notably from solar, wind, and hydro sources. Just days earlier, on 16 April, Spain’s power grid ran entirely on renewable energy for the first time. However, critics argue that this renewable energy penetration might have exacerbated the blackout. Independent energy consultant Kathryn Porter explained to the Daily Mail that “the more you have wind and solar on the grid, the less stable the grid becomes and so the harder it is to manage faults.”

Porter further elaborated: “Traditional generators, like coal and hydroelectric plants or gas turbines, are connected directly to the grid via heavy spinning machines that store inertia, which acts as a shock absorber, protecting against any supply disruption due to changes in electrical frequency.” She added, “When you are in a low-stability situation, it's much harder to control what happens. Electrical things don't like big changes in frequency and shut themselves down. They all start tripping off. So, your grid operator will have been sitting there, trying to react to the changes in frequency, but they can't do it fast enough. So that causes a cascading grid failure.”

Utility industry analyst Steve Loftus also commented to the Daily Mail, expressing scepticism over the official explanations and suggesting the role of renewables may be downplayed. “I don't see anything unusual in the weather that would cause this issue. The cynic in me wonders if there are people who don't want to admit that it's a renewables issue – if it was – because a lot of people are very invested in its success,” he said. “At the time of the blackout, the grid was very high on solar.”

In the immediate aftermath, safety officials confirmed that Spain’s nuclear power plants, which automatically shut down during the outage, were brought to safe conditions via diesel generators. The country’s nuclear safety council declared all seven reactors safe, with four of them stopping operation automatically upon the power cut and emergency generators kicking in immediately. The other three reactors, which were not operating at the time, also had emergency systems activated.

The disruption had widespread social and economic effects: the Spanish parliament was forced to close, and the Madrid Open tennis tournament was suspended. Madrid’s mayor advised residents to remain where they were while authorities addressed the crisis. Emergency services, including the Red Cross, were seen mobilising to assist affected individuals, distributing water and blankets near train stations.

Reports from British holidaymaker Adrian Coles highlighted the chaos in Madrid, stating, “People are fighting over taxis and the streets are mostly at a standstill.” The blackout affected multiple sectors, including retail, transport, healthcare, and banking, with some hospitals reporting empty emergency beds amid the outage.

While Spain has made significant strides in its green energy transition, this blackout has sparked debate among energy experts and industry observers regarding grid stability issues amid high renewable energy integration. The grid operators and government continue to investigate the precise causes of the outage as power restoration efforts proceed.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

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