# Power outage in Iberian Peninsula highlights challenges of renewable energy grids



On Monday, a widespread power outage struck the Iberian Peninsula, bringing Spain and Portugal to a standstill. The blackout caused significant disruption, paralyzing traffic, disabling mobile networks and ATMs, and leaving people without water supplies. Power was largely restored by Tuesday, though the exact cause of the outage remains undetermined.

Experts highlighted the incident as a critical case study in the challenges posed by energy grids increasingly reliant on renewable sources like wind and solar power. Professor John Underhill, director of the Centre for Energy Transition at Aberdeen University, told The Independent that the blackout illustrates the difficulties renewables face in quickly ramping up supply in unexpected situations. He emphasised the need for countries such as the UK to retain contingency measures to manage sudden stresses on the power grid. A key technical issue concerns "inertia," a stabilising force within traditional grids produced by fossil fuel and nuclear plants, which renewables typically lack. This inertia helps buffer sudden imbalances between electricity supply and demand.

Professor Underhill cited the example that Gibraltar, unaffected by the blackout, maintained power because it has a stable base load not reliant on renewables. He pointed out that the UK has narrowly avoided blackouts in recent years and must carefully plan grid improvements to remain resilient amid increasing electrification and decarbonisation efforts. He warned against transitioning too rapidly to renewables without adequate backup, highlighting the continuing role for nuclear and gas energy to provide grid inertia.

Javier Cavada, CEO of Mitsubishi Power’s EMEA division, also underscored to The Independent that despite Spain and the UK having sophisticated and well-managed grids utilising diverse energy sources, renewables alone cannot deliver all the grid services necessary to maintain stable, uninterrupted power. He explained that the recent outage in Spain and Portugal reflected a lack of grid stability when supply and demand became unbalanced, and voltage regulation failed, severely impacting the grid’s ability to handle renewable intermittency.

Lee Priestley of Conrad Energy, tasked by the UK National Energy System Operator with ensuring grid stability, noted that inertia is essential but can be supplied through means beyond fossil fuel generation. He emphasised that, although infrastructure upgrades cannot be implemented quickly, they promise significant long-term savings compared to maintaining fossil fuel plants solely for grid balancing.

The UK’s National Energy System Operator confirmed that Great Britain’s electricity network was unaffected by Monday’s incident but said investigations are ongoing to determine the cause and that they are cooperating with European counterparts.

While the cause of the blackout remains under investigation, Daniel Muir, senior European power analyst at S&P Global, told Politico that the scale and nature of the event make it unlikely that renewables were the principal cause. He noted that sufficient conventional generation—including nuclear, hydro, cogeneration, and thermal power—was available to support the system prior to the blackout.

Spain and Portugal’s electricity grids are closely interconnected, not only with each other but also with wider European networks, which typically enhances resilience. However, experts warn such interconnectedness can enable disturbances to propagate rapidly in the event of major synchronisation failures. Dr Jianzhong Wu from University of Cardiff pointed out that this interconnectedness means that faults can spread swiftly if a critical failure occurs. Similarly, Dr David Brayshaw of University of Reading explained that sudden losses in power generation or large electricity consumption can upset the balance between supply and demand, causing system frequency fluctuations that may rapidly escalate and trigger widespread blackouts within seconds.

The incident has renewed discussions among energy professionals about grid reliability, the challenges of integrating renewables, and the technical measures necessary to ensure stable electricity supply as countries pursue decarbonisation policies.

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

## Bibliography

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2. <https://www.huffingtonpost.es/global/portugal-desconectapor-precaucion-intercambio-energia-espana.html> - This piece reports on Portugal's decision to temporarily suspend electricity exchanges with Spain as a precautionary measure following the massive blackout, highlighting concerns over grid stability and potential renewable energy surpluses.
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4. <https://cadenaser.com/nacional/2025/04/28/pedro-sanchez-y-la-ministra-sara-aagesen-se-trasladan-a-la-sede-de-red-electrica-para-hacer-seguimiento-del-apagon-cadena-ser/> - This report details the Spanish government's response to the blackout, including the activation of the National Security Council and collaboration with the National Intelligence Centre to analyze the causes, with all hypotheses under consideration.
5. <https://www.abdn.ac.uk/people/john.underhill> - This is the official profile of Professor John Underhill, Director of the Interdisciplinary Centre for Energy Transition at the University of Aberdeen, who commented on the challenges posed by renewable energy integration in grid stability.
6. <https://www.abdn.ac.uk/news/16125/> - This news release announces Professor John Underhill's appointment as Chair of the National Energy Skills Accelerator (NESA), highlighting his role in addressing energy transition challenges.
7. <https://www.independent.co.uk/news/uk/home-news/uk-nationwide-power-outage-spain-portugal-blackouts-b2741998.html> - Please view link - unable to able to access data