

The Day the Lights Went Out

The Iberian blackout: lessons for investors

Important note

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**“For every complex problem there is an answer that is clear, simple and wrong”
– H. L. Mencken**

1. The Iberian blackout does not have a single villain.
2. The lazy explanations - renewables, negative prices, cyberattack, or just add batteries - do not survive contact with the evidence.
3. The next phase of electrification depends on unglamorous system-support services - including testing, commissioning, monitoring and stability services - as much as headline generation.
4. Infrastructure investors should check how assets behave when the grid is under stress, not only whether they are documented as compliant.
5. For sustainability-led investors, the better test is not simply whether an asset is green, but whether it helps make a greener system dependable. Do not conflate diversification with resilience.

Resilience: hard to see but you know it, when it's gone

The word 'resilience' is fashionable in sustainability and climate circles, at the same time as 'adaptation' is being rehabilitated. Very different solutions can be inferred by those terms depending on who utters them. The opposite of resilience was brought home on 28 April 2025, when most of Iberia suddenly lost all its grid electricity supply for the best part of a day. Discern happened to be in the middle of a pitch to a client when our screens went black. Most of the next twenty-four hours were chronicled by candles, car radios and camaraderie from neighbours we barely knew we had.

For weeks in the press, accusations flew. We've gone too far on renewables. We haven't gone far enough. Batteries. Et cetera. A sober reading of the established facts points elsewhere. There is no villain of the piece: not renewables, not fossil fuels, not market incentives, not one unlucky operator in the wrong control room. It will not make an Emmy-winning HBO mini-series. And that is the point. The unsatisfying but truthful account is that the blackout was a system event, in which technical, operational, regulatory and geographic weaknesses concatenated quickly enough to outrun human intervention. With enough blame to go around, the remedies are also, alas, diffuse - but not mysterious.

What does this portend for the future? Europe's total energy and final-energy delivery mix will continue to shift toward electrification. Renewables and associated technologies are likely to continue gaining share, even while hydrocarbons may, for various reasons, endure for longer than climate policy would like. More blackouts, in more countries, have a higher probability-absent the right investment in the right places and proper testing overseen by astute governance. This 'broadly right rather than precisely wrong' picture of the future provides all the justification needed for action.

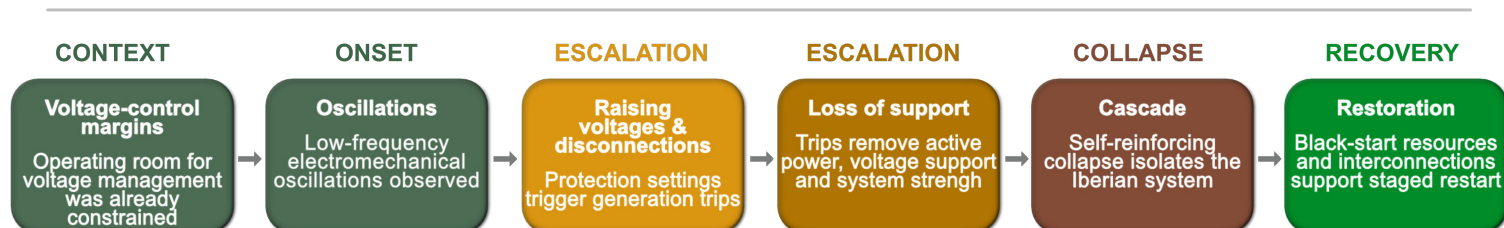
What happened, in plain English

The best-supported account is not that Iberia ran out of electricity, or that renewables, cyberattack or negative prices caused the blackout. It is that the power system was operating with limited room for voltage management. Oscillations appeared. As voltage moved outside safe limits, generating units disconnected automatically under protection settings. Each disconnection removed useful power and support from the system, making the next disconnection harder to contain.

Portugal was pulled in because its grid is synchronously connected to Spain and has no separate electrical route to another neighbouring country. Once Spain destabilised, Portugal had few external stabilising options. Restoration then depended on staged rebuilding, including black-start resources - plants able to help restart parts of the grid without relying on the wider grid - and interconnections with neighbouring systems.

Causal chain of the 28 April 2025 Iberian blackout

A system event: not a single cause diagram



What not to assume

Tempting assumption	Better lesson
Renewables caused the blackout	Renewables were part of the operating context; the problem was system readiness, voltage control, rules, data and behaviour.
Negative prices caused the blackout	Negative prices matter to market design, but were not identified as part of the causal sequence.
Batteries solve this	Storage helps only if it is in the right place, technically configured and contracted for the relevant services.
Compliance equals resilience	Documentary compliance is not the same as verified behaviour under stress.

What is changing - and where this could matter next

Spain is moving most directly on voltage control. Portugal has put more emphasis on restart capability, grid visibility and data exchange. At European level, the remedy package points toward better voltage management, protection settings, system-defence plans, interconnection, restoration planning and markets that pay for stability services.

The direction is clearer than the timing. National rules, retrofits, dispatch systems, incentives and cost allocation will take years, not months. For investors, the country-specific question remains: are my assets vulnerable, which capabilities are mandatory, which are remunerated, and which are still only policy intent?

System / example	Why it matters	Investor question for grid operators or opcos
Spain & Portugal	Semi-peninsular system; limited external support; direct blackout relevance.	Are voltage control,black start, data exchange and interconnection being strengthened?
Ireland / island systems	Limited links to neighbours and major renewables ambitions.	Are system services, storage and stabilising assets keeping pace?
Italy / constrained corridors	Internal bottlenecks can matter as much as borders.	Are grid upgrades, storage and congestion management investable bottlenecks?
Greece / peripheral grids	Constrained regional links and multiple island grids.	Are interconnection, storage and local resilience plans credible?
Finland / Baltics	Changing regional flows, recent synchronisation and resilience needs.	Are flexibility, reserves and operational coordination robust enough?

What investors can do

For infrastructure investors, the first move is not to buy more kit. It is to check the assets. A generation, storage or grid-services owner cannot control the whole surrounding system. It can, however, ask whether its own assets behave as expected, whether settings and controls are current, whether communications and data flows work, and what happens when the system must restart.





Castelo de Bode hydroelectric plant, one of the Portuguese black-start resources used in restoration.

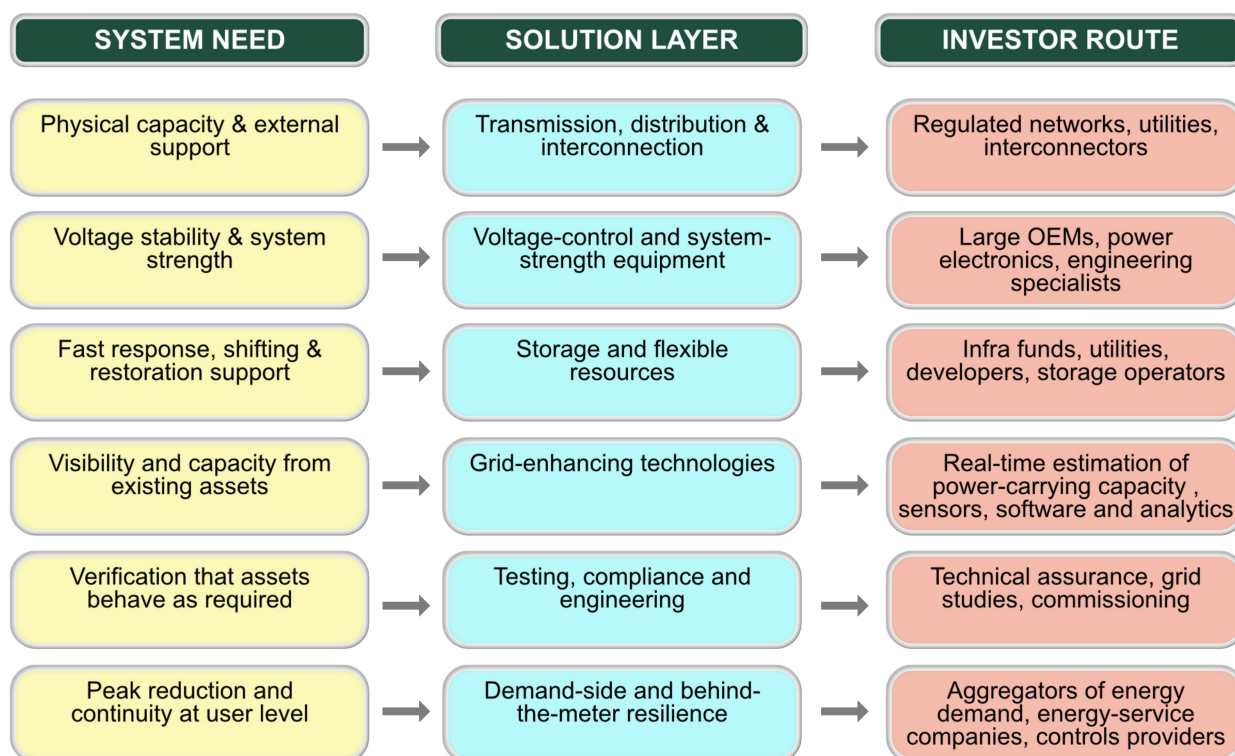
Where the investment likely sits

The opportunity set is not one clean ‘blackout beneficiary’ sector. Much of the visible investment logic may sit less in glamorous ‘blackout technology’ than in the services provided by firms that connect, test, commission, maintain and certify the electrical system. These are prosaic capabilities, but a more stressed grid makes them more valuable.

New load matters too. Data centres, industrial electrification and other large users are increasing demand for grid connection, power-quality studies, substation work, backup systems and utility coordination. Discern’s forthcoming work for the MUFG Sustainable Investment Institute on data centres will encompass this issue: large new electricity demand is a grid-resilience question, not only a power-procurement question.

Resilience value-chain map

System needs → solution layers → investor routes



Routes are illustrative, not a buy list. Fund fit depends on evidence, revenue mix, safeguards and alternatives.

Dark-Green versus Transition funds

For stricter dark-green strategies, the easier candidates are assets or services clearly enabling renewables, electrification, flexibility or reduced curtailment. For climate-transition strategies, the perimeter may be wider. But the test is still evidence: does the asset help make a lower-carbon system dependable, or is there false security in the implication that its mere existence means resilience?



Spain–Morocco interconnection at Tarifa, one of the interconnections used in restoration

Easier cases	Enabling cases	Hard cases
- Renewables with verified grid-support capability. - Transmission, distribution and interconnection.	- Storage and long-duration flexibility, voltage control and system strength services. - Grid-enhancing technologies, testing, compliance and assurance. - Demand-side and behind-the-meter resilience.	Flexible thermal generation and black-start-capable assets are possible only under tight transition conditions; not a free pass for fossil exposure.

Resilience: evidenced in the absence of drama

The lesson of the Iberian blackout is not that Europe should slow electrification, or that renewables should cop the blame. The facts do not support that. The lesson is that the transition has entered its less photogenic, growing-up phase. Solar panels, wind turbines and batteries remain central, but post the blackout they are less sovereign than they seemed and yet more important to resilience. Like supporting thermal or hydro assets, they can create vulnerability when mismatched to the grid's capability and governance.

It is not enough to ask whether an asset is green. The harder question is whether it helps make a greener system dependable. Optimising between these two states, sometimes complementary, occasionally in tension is the system-level objective. Investors cannot control the ultimate outcome. But there are knowable ways they can reduce risk and invest in solutions.

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What the longer version of this paper adds

This short version leaves the full evidentiary work to the long-form paper: the detailed technical chronology, Spain/Portugal/EU remedy detail, transaction examples, fuller fund-screening discussion and glossary. Contact us if interested.

Principal source anchors for the long-form version include ENTSO-E, Spanish and Portuguese regulators and TSOs, EU grid-policy materials, IEA/EPRI material on electricity demand and grids, and Discern internal research

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