



THE IBERIAN (SPAIN- PORTUGAL) PENINSULA BLACKOUT

WHAT HAPPENED, WHY IT Matters, and what Africa & The World Can Learn

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What is an electricity blackout and why does it happen?

An electricity blackout is an extreme event that can affect electricity systems and consists of a sudden, complete interruption of electricity supply in a certain area. A blackout is normally the ultimate result of a major imbalance between the generation and consumption of electricity that was not cured in time by the entities operating the system, i.e. the system operator(s).



On April 28, 2024, the entire electrical system of Spain and Portugal shut down. Apart from the islands, which operate on separate grids, both countries — in addition to parts of southern France connected to the Iberian network — were plunged into darkness. This marked one of the most significant blackouts in the history of the European grid.

What caused the blackout?

At approximately 12:30 pm local time in Spain — just minutes before the grid collapsed — renewable sources accounted for 78% of electricity generation in the Iberian system, with solar alone contributing nearly 60%. By contrast, conventional technologies, such as gas-fired and nuclear power plants, comprised only around 15% of the total generation mix. This configuration is not unusual in Spain or Portugal, where high shares of renewable generation are common, particularly during sunny and windy days. The sudden blackout led many private and public sector experts, including top government officials, to question whether the disruption could have been caused by a cyberattack. Investigations in this regard are ongoing.

Why is this event relevant to Africa?

Africa is currently expanding its energy infrastructure and increasing regional interconnections through initiatives like the West African Power Pool (WAPP) and Southern African Power Pool (SAPP). The Spain-Portugal blackout shows what can go wrong when systems are interconnected, but not resilient. For Africa, the lesson is clear: do not build fragile network connections—build smart, flexible, resilient and fault-tolerant infrastructure. This also trickles down to domestic network infrastructure within countries across the continent; given the current structure of the transmission networks which occasion frequent blackouts. Grid instability also hinders the integration of intermittent renewable energy sources.

What role do renewables play in blackouts like this?

Renewable energy sources such as solar and wind are crucial for sustainable development, but they can pose challenges to grid stability if not well integrated. Their intermittent nature (they don't produce power when the sun is not shining or when the wind is not blowing) can lead to imbalances if not supported by energy storage, flexible backup systems, or smart grids. In the Iberian case, while renewables were not the sole cause, the lack of system flexibility contributed to the outage.

Is more interconnection supposed to be a good thing?

Yes—regional interconnection offers many benefits: it allows countries to trade electricity, lower costs, pool and share resources. However, it also means that a failure in one area can quickly spread to others. The key is to balance integration with islanding capability—the ability to isolate parts of the grid to stop failures from spreading.

What lessons should African policymakers and energy planners learn from this?

There are many, but some top lessons include:

- Formulate long term policy frameworks that anticipate future system needs.
- Invest in reactive power resources that can increase grid resilience.
- Invest in grid modernization and upgrades.
- Think local and decentralized; off-grid and mini-grid solutions can complement grid infrastructure; hence, allowing for the integration of electrified and decentralised systems.
- Build climate-smart infrastructure to account for the ongoing energy transition.
- Human capacity is critical in managing real-time energy crisis, etc.

How can the global community help?

Global institutions, donors, and private-sector actors must:

- Support capacity building and knowledge transfer.
- Fund climate-resilient energy infrastructure.
- Develop international energy security standards that can be localised.
- Support African countries to access innovative financing for smart and sustainable energy systems, etc.

What's the bottom line?

The Spain-Portugal blackout was not just a European crisis—it was a global warning shot. It revealed how vulnerable modern power systems are, and how urgently we need to build smarter, more flexible, and more resilient grids. For Africa, this is an opportunity to leapfrog outdated infrastructure and invest in an energy future that is secure, inclusive, reliable and resilient.

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References

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