

Portland Energy Market Report: August 2025

Spain and Portugal are still the most popular overseas holiday destinations for UK holiday makers. After all, what could be more Blighty than a Full English in Benidorm, Chips 'n' Gravy in Lloret del Mar and pavement pizzas outside Lineker's Bar in the Algarve?! How many tourists this summer we wonder, gave a second thought to the power networks of both countries? Our guess is very few, even though only a few months ago, both Spain and Portugal suffered a complete electrical shut-down...

The catastrophic power outage took place at 12.30pm on Monday 28th April and electrical power was interrupted for over 10 hours in both Spain and Portugal. In some areas, the lack of power lasted up to 36 hours. Over 60m people across the Iberian Peninsula were without power, making it one of the worst black-outs in European history. 100 train journeys were interrupted (affecting 35,000 passengers), underground metro services were shut-down (causing outbreaks of mass panic) and 500 flights were cancelled. Mobile phone networks crashed and credit cards ceased to work, causing an estimated temporary loss to Spain's GDP of €1.6bn Euros. Insurance claims are still being processed, but are predicted to be between €300m - €500m Euros. Sadly, there were also a small number of deaths (7) as a result of cessation of hospital equipment (respirators) and indirectly through the use of faulty diesel generators for back-up power.

In the immediate aftermath of all this, the online conspiracy theory community predictably went into over-drive. Initial reactions on Social Media were that long-planned extra-terrestrial activity was to blame, quickly followed by cast-iron assertions that Bill Gates' (non-existent) sun-blocking experiment was at work, along with chemical agents released via aviation chemtrails. Others were clear that the "global elite" - fresh from planning sessions in Davos - had unleashed the chaos to foster societal collapse. There were also several sabotage theories around Russian bots (not entirely unreasonable), North Korea (satellite based Electromagnetic Pulse attack), Organised Crime and Chuck Norris. Quite what the beef all these protagonists had with Spain and Portugal was never really bottomed out...

Once the nut-job community had their say, it was the turn of the Renewable naysayers. They suggested that an over reliance on green electricity was to blame, because the original problem emanated from a faulty Solar Array Inverter. Traditional electricity grids are designed around fossil-fuel power stations (coal, oil, gas) which generate Alternating Current (AC). Renewable energy on the other hand generates Direct Current (DC), which means that solar generation has to be converted (via photovoltaic inversion) to AC, before it can "enter" the grid. In a country like Spain, which has a lot of solar power (about 20% of electricity comes from solar panels), tremendous amounts of inversion at a very large scale is required.

One such industrial solar inverter (in Granada) was the original cause of the power trip – hence the reaction against renewable energy. However, it does seem fairly simplistic to conclude that one faulty inverter automatically means that renewable generation is flawed. The reality is that following the initial power-down, multiple failsafe mechanisms didn't trigger and "reactive" power support (from traditional sources) was not forthcoming. The resultant extreme "voltage oscillations" went on to sequentially knock-out sub-stations around Spain (Seville, Huelva, Badajoz and so on), which eventually brought the whole system crashing down.

In this light, a fairer conclusion would be that the failures of 28th April were the result of insufficient operational resilience and grid mismanagement. Nonetheless, solar power (and renewables in general) cannot be immune from criticism and part of the problem lies with the economics of renewables. Existing grid systems are not designed to receive renewable power and so we cannot ignore the fact that as a result, they must be upgraded before they can receive solar and wind. However, when assessments are made with regards the "raw" cost of renewable energy, the cost of this inversion infrastructure is almost always overlooked and becomes a forgotten consideration. Consequently, in our rush to erect wind turbines and install solar panels, the core requirement of nationwide connectivity has fallen behind.

The findings of the official Spanish government investigation pointed to "multi-factorial energy failures", which is a government way of saying that lots of things went wrong (really?!). Equal blame was apportioned between REE (Red Electrica de Espana - the grid operator) and private energy generators, whilst the faulty solar inverter was identified as the root cause. What is probably missing is the wake-up call to those countries that are in the process of making a rapid transition from traditional turbine based generation (known as "high-inertia") to the more dynamic (and inconsistent) transmission ("low-inertia") that results from renewable energy sources. The "problems" of low inertia are solvable by the likes of large-scale battery storage (and of course, non-faulty pieces of kit!), but this takes time and is costly. As long as the investment in connectivity infrastructure lags behind renewable generation, the Spanish / Portuguese experience may not be our only black-out event and this should worry us all. As Andrew Cook observes in his thought-provoking short-story, "Black Start"; "Electricity is the great glue of civilisation. With light, there is safety. With the darkness, there is menace. Take away religion, decency, goodwill and only electricity is left to maintain order"..