Power Without Wires â?? Why The Grid Is The Real Bottleneck

As we discussed in last monthâ??s report *â??Trumpâ??s War on Wind and Solar Continuesâ?•*, President Trump has made no secret of his hostility toward renewable energy. Yet even he has acknowledged that the US cannot win the global AI race against China without vastly more electricity. Training and running advanced AI models consumes staggering amounts of power, however, the real constraint is not wind turbines or solar panels, but rather the ability to connect new power generation to data centres via the grid. Much of Americaâ??s transmission system, built decades ago, is already buckling under growing load. Some analysts warn that to keep pace with demand, the grid will need to double or even triple in capacity over the next twenty years.

Europe finds itself in much the same situation, though with one critical difference: most governments remain committed to decarbonisation targets and continue to expand renewable capacity. That makes the grid bottleneck even more visible. This spring provided two sharp reminders of its severity. In late April, Spain and Portugal suffered a rare system-wide blackout caused by what ENTSO-E, the European transmission association, termed a â??complex chain of technical and operational factors.â?• A few months later, Scotland reported record wind curtailments with 4 terawatt-hours lost in the first half of 2025, enough to power every household in Scotland for six months. These are not isolated events but symptoms of a systemic mismatch between the pace of renewable deployment and the far slower expansion of grid infrastructure.

Four Drivers Behind the Grid Super-Cycle

First, demand is rising again. Electrification of heating, transport, and industry, combined with the rapid growth of data centres, is pushing power loads steadily higher.

Second, the grid geography is changing. Where once a handful of large power plants dominated, today the system is increasingly decentralized. Also, the best renewable resources are often located far from demand centres. North Sea wind must reach German factories in the south, French nuclear must flow east, and Iberian solar must travel north. That requires long-distance, high-capacity power highways: HVDC (High Voltage Direct Current) lines capable of transmitting power efficiently over hundreds of kilometres, complemented by 400 kV+ (kilovolt) backbones that function as the highways of national networks.

Third, the grid is ageing. The bulk of the European power networks were built between 1920-1960. Although they were constantly upgraded, they have not kept pace with rising demand or the shift toward intermittent and distributed generation.

Fourth, operational reality bites. In 2024, wholesale European electricity prices cleared at zero or negative for about 4% of all hours, double the share of 2023. This was not because renewables were â??worthlessâ?•, but because the system could not absorb, transport, or store the surpluses.

Hence, the paradox is that Europe does not lack power, but rather connection. Spain often generates more solar than it can move to cities. Scotland routinely curtails abundant northern wind which forces expensive gas-fired plants in the south to pick up the slack. Sweden sees cheap or negative prices in the north, but due to inadequate transmission, the south pays power prices closer to Continental Europe. In each of the three cases, the problem is not power generation, but the wires to carry it.

Grid operators are responding. Germanyâ??s network development plan foresees 4,800 km of new high-voltage lines and â?¬200bn of investments by 2037, including a series of â??electricity autobahnsâ?• to move wind power from the north to factories in the south. Franceâ??s RTE has

mapped out a â?¬100bn plan to replace aging lines and build connections for offshore wind. The UKâ??s Ofgem has approved an initial spending plan of Â£10bn, the first steps in what is likely to become an Â£80bn+ expansion of the electrical grid into the 2030s. In Italy, Terna plans to invest more than â?¬23bn in its â??Hypergridâ?• of submarine and underground cables to double northâ??south transfer capacity, while Spain is pressing ahead with new interconnectors to France, Portugal and Morocco.

This investment super-cycle has clear beneficiaries in which the fund is involved. Global cable manufacturers like **NKT, Prysmian (PRY)**, and **Nexans (NEX)** are seeing record order books. Engineering and installation specialists like **SPIE** and component providers such as **Schneider Electric (SU)** and **Siemens Energy (ENR)** play essential roles in providing substations, switchgear, and control systems for these expanding grids. The fund is also invested in some of grid owners, like **EON, National Grid (NG/)** and **Elia (ELI)**, which will see strong earnings growth from higher regulated return on soaring investments.

So, what exactly needs to be built? The requirements are, we believe, well understood by regulators and companies alike. Europe needs new â??power highwaysâ?•: HVDC links to move huge volumes of electricity efficiently from where it is produced to where it is consumed. It needs more cross-border interconnectors to allow neighbours to share surpluses and back each other up when the wind or sun fall short. At sea, it needs offshore hubs to consolidate wind output into shared platforms that serve multiple markets. At a local level, distribution grids must be modernised so rooftop solar, EVs, and heat pumps can be connected without overloading networks. By modernisation we mean tangible upgrades: thicker cables, new substations, and digitalized control systems that manage flows in real time. Alongside the wires, the system must build â??buffersâ?• like batteries, pumped hydro and flexible demand systems that can absorb peaks and provide stability. It is an enormous task.

For both investors and society, the message is clear: returns follow wires. Every euro invested in high-voltage lines or storage unlocks several euros of renewable value that would otherwise be stranded. UKâ??s Ofgem estimates average network costs will increase by Â£52 per customer annually but deliver savings of roughly Â£80 per year by 2031. Whether in America, where the AI race collides with an outdated grid, or in Europe, where decarbonisation is running ahead of infrastructure, the lesson is the same: building power generation without building connection is self-defeating. The next frontier is wiring up the transition by making renewables dispatchable, ensuring power flow smoothly, and securing the backbone of electrified societies.

We continue to view the grid as one of the most powerful and durable investment themes ahead. It sits at the interconnection of three mega-trends, the boom in AI data centres, the electrification of industry and society, and the transition to a less carbonised world. For us, it remains not just a bottleneck, but also a cornerstone opportunity.

Date Created
2025/09/05