

Reserve power: why smaller is better

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An energy crisis in the UK may be closer than you think. ‘The beast from the east’ is just one of the more recent events that exposed the enormous strain being placed on our energy infrastructure at times when people need it most. And then there are the warnings that the grid could be put under even greater pressure due to future developments including a possible ban on fossil fuel vehicles by 2040.

A closer look at what’s creating this pressure reveals why the threat to our energy infrastructure isn’t merely something that will arise during exceptional weather or in the distant future. Many of the facilities used to produce traditional forms of energy are scheduled to turn off, like coal, or are in need of repair or replacement, with the timeline of replacement not keeping up with demand. This has contributed to an increase in the UK’s energy imports from Europe in recent years, a trend which is expected to continue.

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The growing cost-effectiveness of renewable energy has helped counter some of the potential issues around imports and is also helping the UK make the necessary move from gas and coal. Such is its popularity that close to a third of all power generated in the UK is now



produced by renewable sources. This has undoubtedly changed the face of the UK energy market to a cleaner system, but it also brings its own challenges. On any given day you can’t simply turn on the sun or the wind as and when required. This means that there are much greater fluctuations in energy generation, which current infrastructure just isn’t designed to support. The result is that it becomes very difficult for the grid and other network operators to manage supply and demand.

One answer to managing these fluctuations, and ultimately lessen the impact of an impending energy crisis, could be to balance this volatility with reserve power such as gas engines or battery storage.

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How does reserve power work?

We believe the development of reserve power is much-needed in the UK energy market, but it remains an unfamiliar concept to most people, despite the fact that some of the underlying technology is already fairly old.

Reserve power is the process of timing energy supply, so it can be used during periods of peak demand. Battery storage and peaking plants are the two main ways of doing this. You may be slightly more familiar with battery storage – Tesla built the world’s largest battery in Australia last year – which operates by charging up on energy during periods of low demand, allowing energy to be used when needed.

The ongoing development of technology has allowed battery prices to come down, and consequently, investment in batteries as a component of our energy infrastructure is decisively increasing.

Peaking plants, which have existed in some form for a considerable time already, work by converting gas into electricity via gas-fired turbines. The plants tend to only operate for a short time during high demand, such as cold winter evenings, hence the name ‘peaking plant’. Companies that own and operate these ‘peakers’ can receive income from National Grid contracts and/or trade the electricity they generate when demand, and therefore prices, are higher.

Investing in reserve power

The UK’s energy market is already heavily dominated by a small number of very large companies. It’s easy to imagine that these same players could dominate the reserve power market, too, leaving small-scale investors very little in the way of investment opportunities.

The reality, however, is that the big energy companies are focused on better serving their supply customers, leaving investment into peaking plant and generation assets to the rest of the market. Furthermore, the UK’s reserve power market has shifted to having distributed generation where we can generate power closer to the point of consumption. These smaller grids can only manage smaller power plants, requiring peaking plants and batteries to be installed in areas of need.

The emphasis on smaller projects opens reserve power to a wider pool of potential investors, with investment firms such as Downing providing funding for both peaking plants and battery storage.

For example, Downing is providing an investment in the initial stage of a £1.6 billion world-first network of transmission network connected batteries. Each site will supply electricity to charging stations for rapid electric vehicle (EV) across the UK. The installed batteries will also be capable of storing enough power to supply 235,000 average homes for a day (source: Pivot Power).

We believe reserve power is undoubtedly going to be an important part of keeping our energy system working, not only enabling the continuing use of renewable energy sources but providing the crucial capability to balance the network at times of volatility. Provided investors look carefully at any underlying risk of an individual project and are confident that it’s suitable for their financial circumstances, the need for reserve power both now and in the future can present an interesting investment opportunity.

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