

What Next for Wind Power?

The Turbines are turning

It is a truth universally acknowledged that, if the UK is to meet its legal obligation to achieve net zero by 2050, wind energy will have an important part to play. Britain has been successful in cutting emissions from the power generation sector to well below the 1990 baseline. Total emissions of CO₂ by the sector have fallen from 200 million tonnes p.a. in 1990 to approximately one quarter of that figure. Coal was responsible for 40% of UK generation as recently as 2012 but it, and oil, have been virtually eliminated from the generation mix and will be wholly removed when the Ratcliffe power station closes in September of this year. Renewables have taken up most of the slack. At the same time the total terawatt hours of electricity generated peaked in around 2006 and has largely declined since then. Overall, we are currently using less power than we did in the noughties.

It should be recognised that, whilst there are certainly issues to be addressed, wind power generation is a UK success story. Our geography lends itself to wind power and the industry has exploited this. In 2023 the UK was 4th internationally in terms of installed capacity, a long way behind the much larger USA and China but ahead of all European countries with the exception of Germany. The Hornsea 2 project, off the Yorkshire coast, is the world's largest offshore wind farm and, when complete, the Dogger Bank project will be 2.5 times larger. This relative success has been the result of a steady, and pretty linear, increase in wind capacity from 5 GW in 2010 to just under 30 GW in 2023. In the nineties onshore wind was predominant but offshore generation has grown more rapidly in recent years so that, by 2023, capacity is almost equally split between offshore and onshore at approximately 15 GW each. The wind blows more consistently offshore, with the result that offshore farms produce more electricity for the same installed capacity.

So, what's the problem?

The removal of coal and oil from the generation mix was the low hanging fruit. Whilst renewables have played a major part in this, an increase in output from gas fired generation has also served to fill the gap. Further reductions of CO₂ emissions from the sector will need to come from a reduction in the proportion of output coming from gas. That is going to be much harder.

The challenge is enhanced by a second factor. The fall in total electricity consumption over recent years, which allowed coal and oil fired power stations to be decommissioned, is projected to be reversed. More electric power is going to be needed as society becomes more reliant on electricity and less on fossil fuels. The move to electric vehicles is a key element of this. 2022 saw the first uptick in total annual electricity generation since 2010. The Committee on Climate Change projects an increase of 56% in UK electricity demand by 2035. Together these factors require a big step-up in the contribution by wind power and renewables more generally.

Government is firmly committed to boosting offshore wind. It has set an objective of 50 GW capacity by 2030. That is certainly a stretch target. As of last year, it required an additional 4.5 GW each year, more than has ever been delivered to date. The projects currently in development will provide a decent increase, but the medium term future is less clear. Materials inflation has hit the costs of developing new fields hard and increased borrowing costs have added to the problem, making some developments uneconomic. One result was that Vattenfall has called a halt to the development of the Norfolk Boreas wind farm, for which it had won a licence and was in the process of preparing for development.

Most egregiously the Allocation Round 5 auction of the Contracts for Difference process resulted in no bids whatsoever from eligible offshore wind projects. Developers deemed the maximum strike price of £44 per MWh too low. This can only be considered as the Government shooting itself in the foot by obstinately refusing to acknowledge that changes in market conditions had meant that costs could not be expected constantly to fall. For Allocation Round 6 the maximum strike price has been reset at £73 per MWh. The industry still considers this too low especially given that the failure of AR5 has increased the amount of offshore capacity needed to be brought onstream annually if the 50GW target for 2030 is to have any chance of being met.

Onshore wind development becalmed

But offshore wind development is in a benign environment compared to that of its onshore sibling. Onshore construction is easier and much less costly than offshore but evokes opposition from those living near any proposed site. Sensitive to this opposition the 2015 Cameron Government ended subsidies for onshore wind and introduced two planning restrictions which, in practice, had the effect of putting a block on all new onshore development.

First, any proposed development would have to be in an area identified as suitable for wind energy in a local plan. Those plans take many years to develop so that this requirement is a substantial barrier.

The second restriction has been the obligation to demonstrate that the proposal has the support of the local community. It has been taken to mean that a single objection would be fatal to meeting this test. Without clear guidance as to how community support can be demonstrated developers have not been prepared to expend money on onshore wind. The result was that just 16 new turbines were approved between 2016 and 2020, a 96% fall from the previous five-year period.

Government says that it is committed to onshore wind. It is opening up the sector to subsidy by now allowing it to be included in the Contracts for Difference auctions. But the politics are such that it has shown no urgency to sort the planning issues.

Planning authorities can now identify sites generally rather than being restricted to sites identified in a local plan. Government also conducted a consultation last year on increasing the benefits to be offered to local communities where onshore wind farms are sited. Now, in its response to the consultation, Government has, at last, acknowledged that clarity is needed in the concept of “community support” and that it will provide guidance on this. With an election approaching it is probably unrealistic to expect this issue to be wholly resolved anytime soon. But there is a realistic prospect that the current stasis will not continue forever.

Blowing away the Cobwebs

By contrast, the Labour Party, who might just form the next government, have committed to doubling the output from onshore wind. Whilst the party has rowed back from its £28bn. planned green investment it has been clear that one of its first acts will be to remove the planning constraints which have held back the sector. This is a cost free action (at least in financial terms). So, we really can expect renewed opportunities for investment in the sector if there is a change of government.

Patrick Twist
Consultant
3 April 2024