

Ensuring the bankability of the UK's low-carbon fleet

Policy | Strong policy support to safeguard the bankability of low-carbon energy technologies and underpin the UK's ongoing decarbonisation efforts. Gareth Miller of Cornwall Insight outlines proposals for a new route to market that would guarantee future investment in much-needed renewables such as solar and onshore wind



Credit: Mr Renewables/Wikimedia Commons

Officials at the UK's Department of Business, Energy and Industrial Strategy (BEIS) will inevitably be turning to how they manage the production of an energy white paper alongside the taxing demands of Brexit, and against a context of the new nuclear pipeline collapsing in on itself (see p.37). Whilst recent ministerial statements suggest very little appetite for reigniting contracts for difference (CfDs) for onshore wind and solar PV, with a nuclear and offshore wind-led strategy likely to be to the fore, the opportunity remains for onshore renewables to re-state its case for rehabilitation. And it is a powerful case when weighed up against the infrastructure and investment challenge that presents itself to the power sector as we pursue perhaps steepening 2050 decarbonisation objectives.

Projections show that even with big growth in offshore wind, significant capacity still needs to be delivered from onshore renewable technologies if we are to achieve

the decarbonisation pathway to 2050. National Grid produced analysis as part of its 2018 Future Energy Scenarios (FES) which showed that for its "Two Degree" case, which is most compatible with 2050 targets, there is a 107GW gap between the 53GW of low-carbon capacity that we have today and the 160GW that may be required in 2050, which includes a further 30GW of new solar PV and 10GW of new onshore wind.

The scale of the challenge is even greater given the age of the existing low-carbon fleet. Existing nuclear plants will encounter difficult decisions in the early-mid 2020s and are due to go off-line during the next decade. In addition, by 2050 every renewable power plant currently operational or committed to today will have exceeded its useful 25-year asset life. Without a meaningful signal to repower or rebuild these sites they may close.

It is conceivable that all the 160GW will need to raise new investment by 2050: 53GW in terms of repowering or replace-

Strong policy support is necessary to underpin future investment in solar and wind in the UK

ment and 107GW of new-build generation. This is four times the level of capacity that has been delivered in the last two decades.

Currently, the government assumes that onshore renewables can continue to deploy without policy support. In our view, this is a mistake. Whilst there have been significant reductions in costs in onshore renewable technologies, this does not make investments credible without revenue stabilisation. Project funding from banks and other risk-averse investors will still require insulation against short-term, substantial swings in wholesale power prices.

Price cannibalisation

Renewable power output from wind and solar is highly correlated to weather. For example, when it is windy, and particularly at times outside of peak demand, the level of output from the UK wind fleet creates substantial downward pressure on wholesale market power prices. The same is true of solar PV, although there is a marginal

softening of the impact by virtue of solar generation tending to peak with demand.

This means that wind and solar PV generators will “capture” a price that is below the average price in the market for baseload generation, a phenomenon known as “price cannibalisation”.

Even with the advent of battery storage, price cannibalisation will intensify if deployment increases. Whilst gas and carbon will remain price-setting commodities in the near term, in the medium to long term, the changing generation mix means the influence on power prices from these commodities diminishes. We foresee significant cannibalisation during the 25-30 year asset life of new onshore renewable projects.

From our experience banks and other risk-averse investors are unlikely to invest large amounts of capital in projects which face these kinds of risks. In assessing whether to make a loan, banks examine whether in downside scenarios there will be enough cash to repay the entire loan and meet each six-monthly instalment, and debt service cover ratios.

Investment models which reflect greater cannibalisation and volatility will encourage lenders to be prudent. This will mean either banks will lend less, and at a higher cost, or they won't lend at all. Lower debt levels mean more equity committed to fund construction, and a consequential negative impact on equity investor returns. Fewer banks willing to lend at all means lower capital flowing into the sector.

At a sectoral level this matters because project finance lenders have provided hundreds of billions of dollars of capital to the sector globally in the last decade, and – at an individual project level in markets like Britain – between 70-80% of the capital funding requirements of individual onshore wind and solar projects.

At the same time, equity investors' return expectations will rise to reflect higher risk. A report by the financial accounting, advisory and auditing firm Mazars in August 2018 supports this view, highlighting an upward trend in discount rates related to increasing levels of wholesale power price risk.

It is unlikely that suitable “de-risking” support will be forthcoming from the commercial power purchase agreement (PPA) market. Many PPA providers will now offer long-term (10-15 year) contracts but these contracts have floor prices between £10-20/MWh, which are insufficient to allow projects to raise the level of debt required to reach a reasonable rate of equity return.

The corporate PPA market has been

identified as a stimulus for wind and solar PV to flourish outside the CfD. Corporate PPAs tend to see business buyers fix a long-term price for an offtake with a renewable generator, with a licensed supplier providing trading and balancing services in the background. Some corporate PPA transactions have already been closed in the UK, mostly for extensions to existing subsidised renewable power stations.

It is highly likely that corporate PPAs will deliver some new-build projects, particularly in prime development locations. However, prices agreed in corporate PPAs are currently not at levels that will deliver a large volume of projects. In addition, whilst there is significant demand from generators and developers for corporate PPAs, there are not yet matching levels of supply.

Finally, hopes that the capacity market will provide a transformative bankable support for new or repowering renewables projects are likely to be misplaced if the recently published parameters and methodology for de-rating renewables are eventually adopted.

The lack of revenue stabilisation will significantly reduce the bankability of grid-scale onshore wind and solar PV and make it inconceivable that our power sector decarbonisation objectives can be achieved.

CfD floor

To bridge the gap, we have recently written to BEIS recommending that the government explores the implementation of a ‘CfD floor’. This structure is based on a simple premise that the generator will receive protection against wholesale reference prices below a guaranteed floor price (in £/MWh), and would only be able to realise upside in power prices above the floor price to the extent that any sums received under the floor had been fully repaid first. To avoid the unnecessary administrative burden of reconciling and settling individually for every half-hourly period, settlement against the floor would be based around 30 six-month reconciliation periods over the 15-year payment term of the CfD.

This model would deliver several advantages. There will be lower CfD strike prices. This is because bidders would be aiming to secure a floor that covers their fixed costs and debt repayments rather than a price which delivers their total return. Anecdotal discussions with developers suggest onshore wind floor prices could be in the region of £30-35/MWh in 2011-12 values for highly efficient projects. This is compared to administered strike prices for offshore

wind of £53-56/MWh in 2011-12 values announced for the third allocation round.

As a result, subsidy costs and consumer costs of decarbonisation will reduce, potentially to zero. Not only will lower strike prices result in a greatly reduced risk of subsidy, notably the CfD floor is designed to ensure that any subsidy costs incurred would be recouped. Subsidy, if arising at all, acts like a working capital facility, and would not be expected to result in long-term, sunk subsidy cost to consumers.

From a practical perspective, the CfD floor would not necessitate any material changes to how CfDs are auctioned, contracts are administered, levy payments collected and payments settled to generators. The contract payment mechanism would need to be adapted to accommodate payment against a floor price rather than a fixed price. An amended CfD contract could be auctioned and settled in a fashion compatible with the regulatory and institutional design of the current CfD.

Critically, the CfD floor would turbo charge the attraction of low-cost-of-capital investors back to the onshore renewables sector. The floor CfD is entirely compatible with the risk appetite of the traditional and substantial providers of capital to this sector.

To conclude, it seems to us that if the government is serious about meeting climate goals at the lowest possible cost, onshore renewables must play a substantial role. As it becomes clear that this role cannot be facilitated by market-based solutions, then the imperative for good policy support becomes irresistible. The CfD floor idea isn't the only solution, but – given its focus on leveraging substantial private capital at low public cost – it is a compelling model around which to frame a wider debate on other options. As the white paper is prepared, we hope government open its mind to the full suite of levers available to it, onshore renewables included. ■

Author

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