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UPDATES TO FUTURE CONTRACTS FOR DIFFERENCE (CfDs) PROPOSED BY DECC – NEGATIVE PRICING

On 9 March 2015, the Department of Energy & Climate Change (DECC) published a consultation proposing a number of policy changes to the Contracts for Difference (CfD) contract and CfD regulations. This consultation closed on 20 April 2015 and a Government response is due in the summer of 2015.

Any amendments adopted following the consultation are proposed to apply from the 2015 CfD round onwards, with no proposed effect on existing CfD contract holders.

For this note we concentrate on the proposed changes relating to negative pricing.

As well as negative pricing, the consultation proposes changes making it easier to develop a project as an unincorporated joint venture as well as a number of other minor amendments.

Background on CfDs

CfDs are a mechanism by which low-carbon electricity generation projects are financially supported. The scheme is designed to encourage investment in renewable energy generation. CfDs were introduced by the recent Electricity Market Reform (EMR) as a replacement to the long-standing Renewables Obligation (RO) scheme, and are granted following a competitive auction process.

A generator which submits a successful bid enters into a CfD contract, usually on the standard terms, with the Government-owned Low Carbon Contracts Company. Under the agreement any electricity generation is subsidised by the difference between a reference electricity sale price (known as the 'reference price') and a pre-agreed figure (known as the 'strike price') as bid in the auction.

CfD auctions are held on a yearly basis, with a finite budget being set each year.



Negative pricing

What is negative pricing?

Negative pricing in electricity markets occurs when generators pay people to take their power – a phenomenon that many will find hard to believe.

This situation arises when the supply of electricity onto the grid outstrips demand, and when supply cannot be modified cheaply.

As electricity has to be generated at the time it is needed (ignoring energy storage) the grid must match demand with supply. This is not always simple, as many power stations have little flexibility in their output and it can be very expensive for them to stop and restart. As such, there may be times at which it is commercially sensible to price the power produced at a negative price (i.e. paying somebody to take it) instead of the more costly exercise of temporarily shutting the plant down.

Negative pricing has never happened in the UK, where generation has been planned around forecast demand. However in recent years there has been a surge in intermittent renewables being added to the grid, mainly wind and solar PV, and this generation is more difficult to predict, especially in the medium-to-long term. When this intermittent generation performs well at times of low demand, such as during the early hours of the morning, this can lead to an oversupply and negative prices.

Negative pricing and CfDs

Because of the way the 'reference price' is calculated for intermittent renewables in a CfD contract, negative pricing would provide a large subsidy i.e. if the reference price dropped to -£40/MWh on a strike price of £100/MWh the difference would be £140/MWh. This situation makes it very profitable for intermittent renewable generators to be pumping lots of electricity onto the grid when it needs it the least.

As part of the State Aid clearance for the CfD scheme the UK Government is required, by the European Commission, to:

“By the beginning of 2016, the UK will modify the Contracts for Difference to include provision ensuring that generators do not have an incentive to generate electricity under negative prices. If the day-ahead power auction hourly price is below zero, support will be capped at the strike price. Moreover, if prices remain negative throughout a six-hour period



or longer then the difference amount under the CFD contract will be set to zero for the entirety of that period.”¹

To comply with this requirement there are two proposals in the consultation:

- 1) Any payment is capped at the strike price – i.e. the reference price cannot drop below £0.
- 2) If there is negative pricing for 6 or more consecutive hours the generator will not be paid anything for any electricity generation during that period.

The consultation proposes a definition for ‘Negative Pricing Rolling Periods’ as any period of 6 hours or longer during which the Intermittent Reference Price (from the day-ahead pricing data) has been below zero throughout the whole of that period.

The effect on generators/investors?

There is potential concern that projects will be exposed to the considerable risk of periods of time when they are not entitled to subsidy support under the CfD scheme. However forecasting either the length or frequency of such events is very difficult based on the available data.

An analysis in May 2012 estimated that more than 600 half-hourly prices traded in the day-ahead market would be less than £0/MWh in the year 2030.² However the analysis did not estimate when negative pricing will start to occur, or how frequently it will occur, in Britain.

Since this is a complex and novel issue, DECC has since appointed Baringa Partners to analyse and report on the negative pricing scenario, and the results of this report will be of interest to anyone engaged in forecasting income from CfD projects.

Combating negative pricing

Negative pricing is, as above, based on a mismatch of supply and demand and an inability to schedule generation in line with forecast demand. This is caused by the intermittent nature of many forms of renewables generation, itself very important in reducing the carbon footprint of electricity.

¹ http://ec.europa.eu/competition/state_aid/cases/253263/253263_1583351_110_2.pdf

² https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48443/5693-lcp-assessment-of-the-dispatch-distortions-under-t.pdf



One solution is the development of electricity storage technology and a grid storage industry. This is starting to happen, certainly in Germany, and it could well be that by the time intermittent renewables form a large enough percentage of on-grid generation in the UK for negative pricing to be a problem, such storage technology will be commercially viable on a mass-market level. Development of battery technology, driven by the growth in electric vehicles, should assist this development.

Smart grid technology may also provide a potential mitigation to the supply/demand issue, with demand being controlled (where possible), to take advantage of times of high supply. With the increase in uptake of plug-in electric vehicles the potential for smart chargers, that adjust their demand owing to availability of power on the grid, may allow a distributed approach to battery storage across the grid.

Also, interconnectors that link electricity grids across national borders should assist generators with an abundance of power sell into distant markets which still have sufficient demand, especially given that the weather, which drives intermittent generation, is a reasonably local effect. The UK already has 3GW of interconnector capacity to mainland Europe, 1GW to Northern Ireland and Eire, and a further 1GW interconnector due to be energised in 2018 (Project Nemo). It may be that, as the European grid becomes more integrated and the electricity market for generators to sell to becomes larger, finding a customer willing to pay for generation could become easier, reducing periods of negative pricing.

Conclusion

Whilst the causes of negative pricing, in the form of intermittent renewable generation, continue to increase there are a number of potential developments that should have a mitigating effect on the situation.

That being said, the new proposed CfD rules in relation to negative pricing are relevant to anybody looking to forecast the income of a CfD-funded project going forward. In the meantime we look forward to reviewing the Baringa report commissioned by DECC when it is available.

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