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Energy

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The 2015 GB Capacity Market Auction: drivers and strategies

Setting the scene

The second annual capacity market auction is due to take place in December of this year for delivery starting in October 2019. Last year's clearing price of £19.40/kW-year was below most analysts' expectations, with almost 6 GW of existing capacity failing to secure contracts. Our analysis of last year's auction results suggests that both excess supply and participants' expectations for increasing energy spreads contributed to the low clearing price.

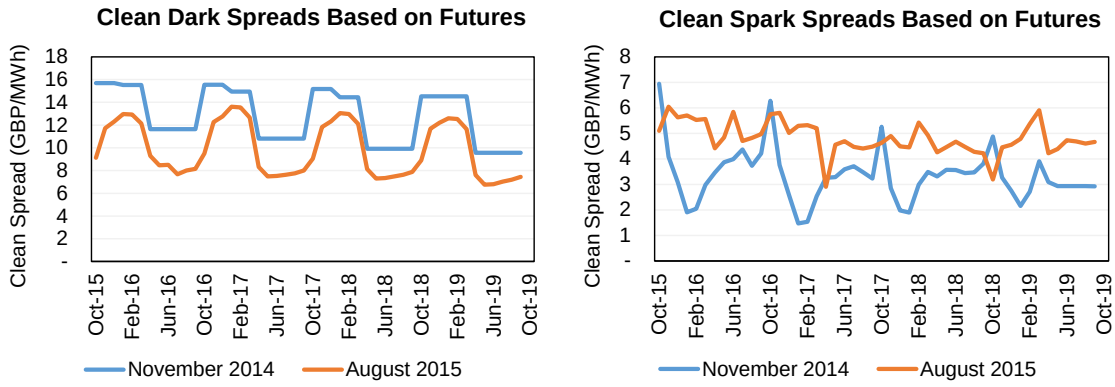
Over the last year, market conditions have improved slightly for gas-fired generators, but most generation continues to be unprofitable under the current conditions. With little sign of significant improvements in the market from changes in commodity prices or underlying demand, the December auction may be influenced, even more than last year, by expectations for plant retirements both prior to and following this year's auction.

Current market environment

Clean spark spreads have increased by around 30% between November 2014 and August 2015. Though improved, spreads are still not enough to support the profitable operation of less efficient Combined Cycle Gas Turbines (CCGTs) in the market. Our analysis shows that many CCGTs in the market are not currently profitable and would have to secure higher capacity (or energy) market prices in order to justify continued operations.

The prospects for coal-fired plant also appear poor. Clean dark spreads have decreased by around 20% since last year and any prospects for recovery are over-shadowed by higher CO_2 prices expected under a reformed EU Emissions Trading System (EU-ETS).

Figure 1: Clean spreads based on November 2014 and August 2015 forward curves



Source: CRA analysis based on Bloomberg data

At the same time, the demand/supply balance for the upcoming auction has not changed significantly since last year. The participation of interconnectors (around 2.9 GW of new derated capacity), more or less offsets the impact of 2.5 GW of new announced plant closures. In addition, further substantial new build is expected from small scale gas and diesel-fuelled plant.

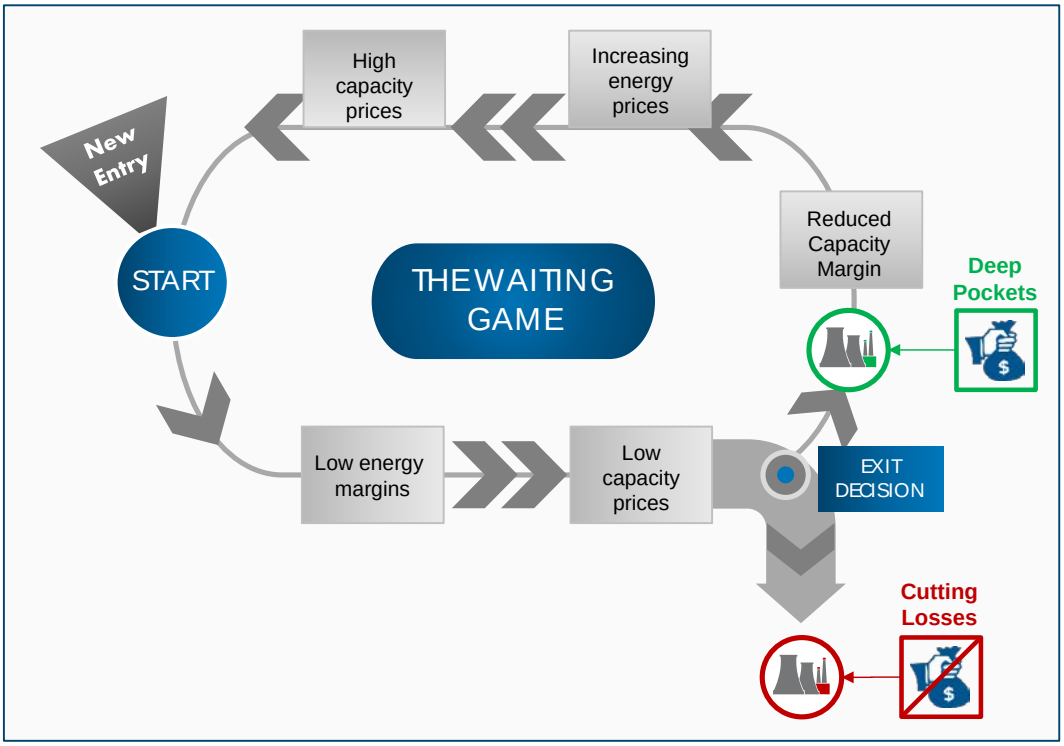
Together, these factors contribute to an initial expectation of continued low capacity prices in the 2015 auction. The extent of the financial pressures on coal plant and CCGTs suggest that there may be increased retirements. This could affect bidding behaviour in the 2015 auction, and potentially improve expected capacity market clearing prices in subsequent auctions. Such price rises might then be sufficient to turn around the prospects for some plant. And this would then also feed back into the 2015 auction bids.

So, some of the key questions for those preparing their bids for the 2015 auction are: Which plant will “cut their losses” and retire? Which plant will dig deep into its pockets for the promise of higher profits down the road? And, can bidding behaviour during the auction shed any light on a participant’s retirement plans?

The waiting game

The decision to remain operational until capacity, or energy market, prices recover needs to take into consideration the present value of prices and cash flows beyond the next capacity auction’s delivery year. However, the relationship between capacity prices and plant closures is interactive. For some plants, the decision by others to retire will encourage them to “wait it out” and stay in the market with the prospect of future improvements in prices.

Figure 2: The “waiting game”



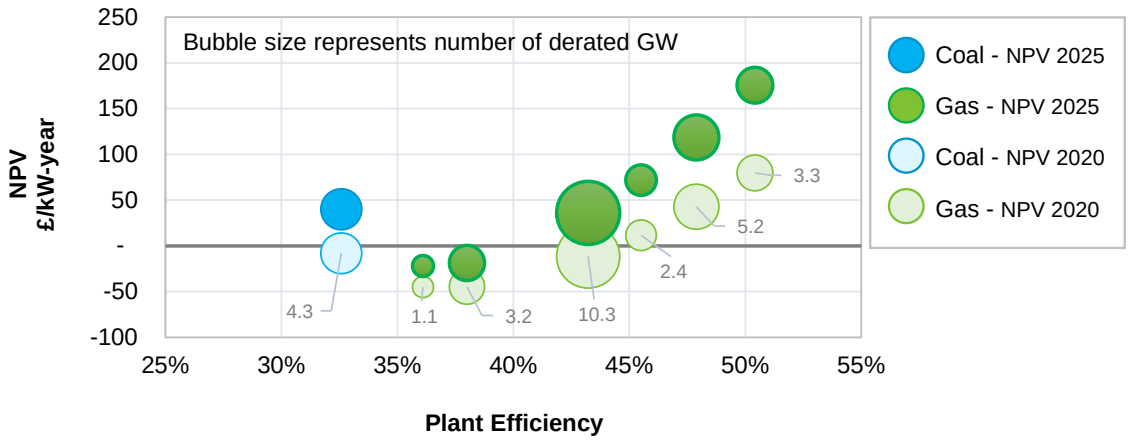
Source: CRA

To illustrate, let’s assume that GB does not need any new capacity until 2025, and that, as a result, capacity prices remain around £20/kW-year for the next few auctions. What implications does this have for the profitability of existing generators? What losses would generators have to sustain through 2020 for an expected recovery by 2025? What generators are more likely to retire?

The analysis illustrated in Figure 3 indicates that, on average, all coal-fired generation and CCGTs with thermal efficiencies of less than 45% are likely to experience negative cashflows through 2020 (on a net present value (NPV) basis). However, under the assumptions of our analysis, the present value of cashflows for some of those generators is expected to become positive by 2025, when capacity prices are assumed to recover. Based on our analysis, only CCGTs with efficiencies below 40% are expected to remain unprofitable through 2025.

This analysis has important implications for both participant’s retirement decisions and bidding strategies during the auction.

Figure 3: NPV of plant profits through 2020 and 2025 (in £/kW-year)



Source: CRA analysis

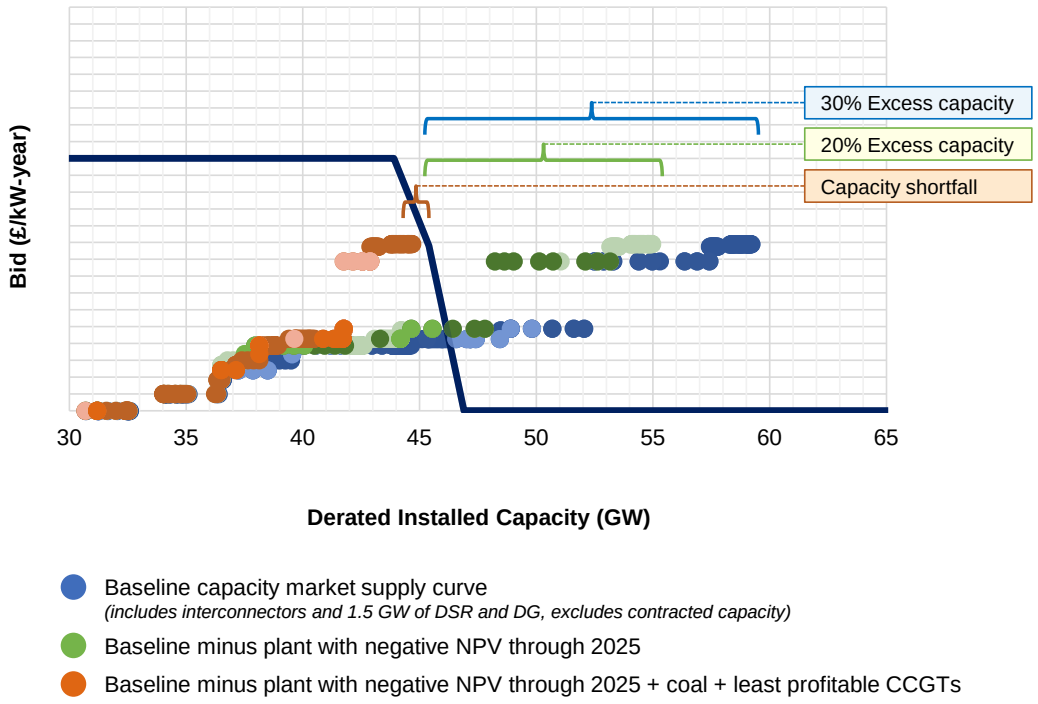
Implications for participant's bidding strategies during the 2015 Capacity Auction

Without any further retirement announcements and assuming increased participation from Demand-side Response (DSR) and distributed generation in this year's auction, capacity can be expected to exceed the target demand by around 30%. However, participation in the capacity auction requires a long-term commitment to maintain the reliability of the assets. Therefore, plant that expect low energy margins to continue may bid in a high exit price for the auction with an intention to shut down unless capacity prices clear above their exit price.

As shown in Figure 4**,** capacity would only exceed the target demand by around 20% if all the plant that expect to remain unprofitable through 2025 decided not to participate, or exited in early rounds of the auction. The margin would be reduced up to the point of a capacity shortfall, if all coal plant and the least profitable gas plant by 2025 also choose to exit the auction early.

As described previously, increased retirements can affect both capacity prices and energy prices, and not just in the 2015 auction delivery year but beyond. Some of this may be revealed by exits during the auction itself. A significant scale of MW exiting above certain thresholds may suggest participants' unwillingness to "wait it out", which in consequence could induce others to change their exit bids to reflect a higher likelihood of energy and capacity market price increases in the future.

Figure 4: Impact of economic plant retirements on capacity market supply curve



Source: CRA analysis

Conclusions

How best to play the "waiting game" with a "no-regrets" capacity auction bidding strategy is complex. It requires the development of a dynamic assessment of bidding behaviours and their impact on future market prices across all market participants. Some of the key considerations include:

- Continuing operations under the current market conditions is cash-flow negative for a significant proportion of existing gas-fired capacity. This may lead to increased retirements, more aggressive bidding behaviour during the auction, or both.
- The retirement of some of the most unprofitable units could significantly tighten the capacity market supply curve, to the advantage of remaining plants.
- However, expectations for increasing capacity prices could further support new entry, both in the form of traditional CCGTs hoping to benefit from higher efficiencies, but also in the form of distributed generation and DSR.
- The interrelated nature of energy and capacity markets suggests that any information that becomes available regarding others' propensity to retire should form part of the capacity market auction bidding strategy both before and during the auction.

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