

Flexibility reaps rewards

Organisations need to adapt to the fast-changing market for demand-side response if they are to take full advantage of the opportunities available. *Graham Oxley* explains

The market for demand-side response (DSR) services is changing fast. Lower prices for many National Grid services mean that previously lucrative options now offer significantly lower returns. The growth in intermittent renewable generation and a greater reliance on continental interconnectors to supply the UK's energy mean that response services need to be faster than ever, with National Grid trying hard to attract a wider range of participants. At the same time, a flattening of Distribution Use of System (DUoS) and other charges has significantly reduced the returns offered by Triad avoidance and reduced the incentive for load-shedding during peak periods.

The old bilateral Frequency Control by Demand Management (FCDM) service has been phased out in favour of shorter-term, auction-based services. The latest of these – Response Auction Trial – was launched in June. It involves weekly auctions for week-long frequency response contracts. Interested participants bid into the auctions for the four-hour electricity forward agreement periods during the following week in which they wish to make their load available. It's an extremely flexible service that enables participants to decide on a weekly basis when they want to take part – or at least bid into the auction. Previous versions of frequency response required participants to predict their demand-management or generation capabilities months in advance.

The service is on a two-year trial, with further modifications in the pipeline. Currently, when participants are triggered to respond, they must maintain their response for 30 minutes. National Grid wants to offer shorter response periods, of ten or even five minutes. It also wants to trial day-ahead and even within-day auctions over the next three years. For participants, the problem of an auction-based system is that



Uncertainty has grown around the possible profitability of several demand response services

there are no guarantees of securing a contract each week – unlike previous longer-term bilateral contracts. It adds to the uncertainty around participation in these demand-side services.

Changing the rules

Changes in DUoS and other charges are making Triad avoidance a less lucrative option than ever before. Ofgem has proposed changing the rules for Triad import charges so that instead of being based on how much energy a business consumes during these peak periods, they are based on the amount of capacity connected to the grid. This would mean the same flat rate charge would apply to a given business, regardless of how much it consumed during Triad periods. Consequently, there will be no incentive for businesses to reduce demand during Triads. As a result, National Grid must find different ways to incentivise businesses to load-shed during peak periods, to avoid significant constraints on the network.

Participation in demand-side reserve services is also under pressure. The Medium Combustion Plant Directive (MCPD) introduced in late 2018 set out sulphur dioxide (SO₂), nitrogen oxide (NO_x) and dust emission limits for generators smaller than 50W (rated thermal

input). Most diesel generators exceed these NO_x limits, and costly modifications are required to clean them up.

By January 2019, diesel generators that did not comply with the NO_x emissions threshold were barred from participation in National Grid DSR services. The necessary modification costs for diesel generators are around £60,000/MW – far more than a generator can earn through DSR participation – so many businesses opted not to invest in the modifications. This has had a major impact on the DSR market, particularly short-term operating reserve (STOR), which relies heavily on the participation of medium-sized responsive generators.

STOR remains an important service for National Grid. It is often the entry point for businesses considering DSR participation. The notice period for

any response is 20 minutes, giving participants the opportunity to test their load-management capabilities while earning both availability and utilisation fees. However, the popularity of the service means it is heavily oversubscribed, and prices for participation have plummeted in recent years. Some participants even offer their capacity for free, which has significantly depressed revenue-earning possibilities through this service. So, what opportunities remain for businesses keen to use their demand flexibility or spare generation capacity to participate in DSR services?

Multiple payment options

One option is to stack multiple compatible services, in order to benefit from the multiple payment options on offer. For example, STOR participation can be combined with Capacity Market participation, since both services are very unlikely to be called upon at the same time.

Specialist aggregators, like ENGIE, are also looking at opportunities for customers to participate in the wholesale electricity market's balancing mechanism. Previously, only large-scale generators and energy suppliers could participate in this mechanism, but changes are planned for late 2019. These could open up the balancing mechanism to demand-side participants, offering new opportunities for businesses to generate revenue from their demand flexibility.

The message for any business interested in earning revenue from DSR opportunities today is that flexibility is key. Your first priority should be to identify any flexible capacity within your operations. This could be an ability to reduce demand from processes instantaneously, to ramp up generators or to switch to battery power at short notice. Once you have identified your flexible capacity, you need to determine how quickly you are able to respond. Finally, calculate the cost to your business of responding in this way. ■

