

## Reserve Service from Storage in the BM

18 May 2020

Dear Colleague,

On 30<sup>th</sup> April we published a letter to the industry, seeking parties to engage in a temporary service (Optional Downward Flexibility Management) to help our Control Room manage the unprecedented levels of low demand that we are experiencing during the Covid-19 pandemic. As part of this invitation we also asked providers to contact us if they believed they had flexible volume that was currently being underutilised. We were approached by Arenko with a proposal for a way to increase the amount of upward and downward reserve that could be secured from battery assets using an approach that was analogous to a BM start-up instruction<sup>1</sup> for a thermal plant or accessing upward and downward reserve on a CCGT plant. We have decided to investigate this operational arrangement during this week, 18<sup>th</sup> May onwards, and we will only be using one party due to the trial nature of the arrangement and the manual processes that will be involved in using and assessing the service.

### Background

As we continue to transition to a world with greater levels of zero-carbon generation, we need to better understand how we operate the system with non-traditional assets. The current pandemic has created unprecedented low levels of demand which were not forecast to occur for several more years, and this has increased the focus on ensuring that we explore all opportunities to increase system flexibility. One technology which has a great potential for providing more flexibility is storage, however the commercial and operational drivers for this technology type are different to those we have historically known.

One of the key system requirements is access to upward and downward reserve. This is the ability for plant to reduce or increase their MW output in order to maintain system balance. Historically we have obtained this through repositioning BMUs to operate above their minimum output (Stable Export Limit, or SEL). One of the ways the Control Room manages this ahead of time is through the BM Standby service or via operational arrangements with CCGT operators to access additional upward or downward reserve. These options allow us to give advance notice to a BMU to make itself available to be instructed on during an upcoming period of time. This allows us to guarantee that we have sufficient upward and downward reserve in the absence of a market signal.

In contrast, the market signal for storage assets is more complex, as the assets may charge or discharge depending on market conditions with little visibility to the Control Room. This means that, unlike a traditional thermal plant, an active storage BMU does not guarantee that any level of upward or downward reserve will be available, and the flexibility that it could be offering is lost.

### Operational Trial

In order to investigate how this flexibility from storage BMUs can be used, we have been working with Arenko on an operational arrangement to allow us to secure upward or downward reserve ahead of time using their battery storage

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<sup>1</sup> BM start up is the process of bringing the generating unit to a state where it is capable of synchronising with the system within BM timescales: <https://www.nationalgrideso.com/balancing-services/reserve-services/bm-start>

BMU. This arrangement will see our Control Room signal an upcoming need for upward or downward reserve in a similar way as we would signal to a thermal plant through a BM start up contract or other operational arrangement.

The trial will involve our Control Room signalling the need to be available during a set time period to the Arenko BMU ahead of gate closure. Arenko will then submit BOA prices for the nominated window. The Control Room will then issue a net zero volume combination of BOA to cover the nominated window, resulting in a pseudo-availability payment for the period. This will secure the BMU to be available during the window, resulting in a guarantee of upward or downward reserve which could be accessed through further BOAs as required.

This arrangement will be assessed against all Control Room options and will only be instructed in those situations where it is the most economic and efficient option, in line with our Balancing Principles Statement<sup>2</sup>.

## Trial Results

Our intention with this operational arrangement is that it mirrors the instruction approach, availability payment, and utilisation payment that is currently available to thermal plant. In doing this, we aim to gain greater understanding of how battery storage assets operate, how we can better access the flexibility that they can provide, and what operational processes and commercial structures would need to be in place to develop this into business as usual.

All the learnings from this trial will be made available to the industry, and we will judge the success on how well it delivers additional flexibility and the cost savings.

If you have any questions or feedback, please get in touch with our team at [box.balancingprogramme@nationalgrid.com](mailto:box.balancingprogramme@nationalgrid.com).

Kind Regards,

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<sup>2</sup> Balancing Principles Statement can be found here: <https://www.nationalgrideso.com/c16-statements-and-consultations#tab-3>