nationalgrid

Service Overview
Supplemental Balancing Reserve

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Issue number: 4.0 – 2/9/14

Overview

This note describes the Supplemental Balancing Reserve (SBR) service that will be procured for the winters of 2015/16 and possibly 2014/15 to provide additional reserves to support National Grid in balancing the transmission system where there is insufficient generating plant available in the market to meet the Government's Reliability Standard.

The service involves contracting with generation that would otherwise be closed or mothballed. This plant would be held in reserve outside the market ready to respond in the unlikely event that it is needed. SBR would fall under the direct control of the System Operator, and be despatched only as a last resort to avoid taking emergency actions such as involuntary demand reductions to secure the transmission system.

Participation

SBR is targeted at power stations that are able to offer additional capacity over and above that available in the electricity or balancing markets – e.g. plant that would otherwise be closed or mothballed that could provide 'additional' reserves to support us in balancing the transmission system.

SBR plant will be required to be available on weekdays between 6am and 8pm from the beginning of November to the end of February, and either have a gas connection or have sufficient fuel stocks available to run during the availability period for 5 consecutive service periods.

All providers must be able to deliver their SBR capability within Balancing Mechanism (BM) timescales (< 89 minutes notice), or be able to be made available in BM timescales via a BM Start-Up / Hot Standby instruction such that the full contracted SBR capability can be delivered within 24 hours of such an instruction being issued.

SBR plant will need to be a party to either a Bilateral Connection Agreement or Bilateral Embedded Generation Agreement with National Grid; to have registered a dedicated Balancing Mechanism Unit (BMU), be Grid Code compliant and have the necessary control and monitoring facilities installed to enable it to be despatch directly by the System Operator.

In certain circumstances, part BMUs may be able to participate in the provision of SBR (e.g. the steam unit of a CCGT or additional capacity from a Unit that does not participate in the market).

SBR plant will be prohibited from participating in the markets for energy and other balancing services for the entire duration of the contract (not just the winter availability period within the term of the contract).

SBR providers would not be required to hold Transmission Entry Capacity (TEC) in order to deliver SBR capability to the transmission system but would be granted, to the extent necessary, sufficient transmission access rights under the SBR contract whenever the SBR plant is despatched.

Volume Requirement

The maximum volume of Demand Side Balancing Reserve (DSBR) and SBR required for each winter has been determined according to the Volume Requirements Methodology approved by Ofgem.

This requirement, subject to a cap of 5% ACS demand, is based on the equivalent volume of capacity required in the market to meet the Government's Reliability Standard against a range of credible scenarios and sensitivities.

In June 2014 the volume requirements were identified as follows:

Year	Maximum De-rated Volume
2014/15	330MW
2015/16	1,800MW
2016/17	1,300MW
2017/18	800MW

Note that these volume requirements are de-rated values, and the actual volume procured will depend on how individual DSBR and SBR resources are 'de-rated'.

For example, if the 2015/16 requirement is met by DSBR and SBR which is de-rated by an average of 80%, the actual volume procured will be up to 2,250MW in order to meet the 1,800MW de-rated requirement.

Procurement Timings

Given the modest requirement identified for winter 2014/15, it was initially decided that this would be met via a pilot of the new DSBR service. SBR would only be procured alongside DSBR for the winter of 2015/16 when the requirement becomes more material.

However, recent power station fires at Ferrybridge and Ironbridge, the impending closure of Barking and the investigations underway at Heysham /Hartlepool have introduced some additional uncertainties in the security of supply outlook for the winter of 2014/15. In response, we have decided to invite tenders for the provision of SBR this winter as a precautionary measure. The tender will close on 30th September 2014. If it becomes clear that there is a need for this service, we will then be in a position to offer SBR contracts to meet this requirement.

We will begin tendering for the 2015/16 requirement in autumn 2014, with at least 25% of the total requirement held back for a second tender in spring 2015. Tenders will be invited from both DSBR and SBR providers to meet these requirements.

The two stage approach will help provide certainty over the ability to access the required volumes, particularly from mothballed generation that may take up to 12 months to return. The second tender will provide an opportunity to those more suited to contracting closer to real time.

Tendering Process

The tendering process would be similar to that used for certain other balancing services. It would be an open and transparent tender process, open to all parties that meet the participation criteria, with information provided to potential bidders ahead of the tender process.

Tenderers would be invited to offer a quantity of SBR Capability (in MW), declare a reliability factor, and submit Capability, BM Start-Up, Hot Standby and Utilisation prices. They would also be required to submit a range of dynamic parameters relevant to their plant as per the Grid Code.

Annual contracts will be offered for the provision of SBR, and these will include an option in favour of National Grid to extend on a per annum basis for up to two years should there be an ongoing requirement for the service.

Tender Assessment

The cost of each SBR tender will be determined as follows:

SBR Cost = Capability Price + Availability Costs + Testing Costs + Utilisation Costs + Contract Costs

The Capability Price is the annual cost tendered to establish the SBR capability. The Availability Cost represents a forecast for making the SBR plant available for despatch in operational timescales via BM Start-up and Hot Standby instructions. Testing Costs represent the cost of monthly proving tests. Utilisation Cost is a forecast cost of running the plant, either inside or outside the BM. The Contract Cost is an estimate of the costs of setting up, administering and operating each SBR contract.

The unit cost will be determined as:

SBR Unit Cost (£/MW) = SBR Cost / ΔEEU

Where ΔEEU is the anticipated reduction in energy unserved that would result from the additional SBR capability, taking account of the declared reliability factor of the plant.

In general, SBR and DSBR Units will be assessed together and accepted in ascending unit cost order, subject to the unit cost of each tender being less than the Value of Lost Load (VoLL). Due to timing issues, SBR tendered for 2014/15 will not be assessed against the DSBR offered as part of the pilot.

This process will continue until either the volume requirement is met or no economic tenders remain. The results of each SBR tender will be published after the tender assessment, including volumes and costs.

Despatch

SBR will only be despatched by the System Operator and will not otherwise be permitted to run, thus holding it outside the market. It would either be

despatched post Gate Closure through the acceptance of Bids / Offers in the BM at the tendered utilisation price, or pre Gate Closure by instructing SBR to submit a profile of Physical Notifications and operate to that profile.

Where despatch post Gate Closure is limited by plant dynamics, this will be enabled by BM Start-up and Hot Standby provisions in the SBR contract.

In principle, SBR will only be despatched as a last resort after all other feasible balancing actions available in the market (including DSBR) have been or are expected to be exhausted, and Emergency Instructions (such as involuntary demand reductions) would otherwise be required to secure the system. In practice, due to plant dynamics, it may be necessary to despatch SBR ahead of need in anticipation of a shortfall event. However, the intention is to minimise any such effects so as not to deprive marginal plant of scarcity rents.

Unlike operating reserves which are required to deal with unexpected events in short timescales, the requirement for SBR is likely to emerge ahead of need. In such circumstances, SBR would be warmed (if required) via a BM Start-up instruction such that it is available to be despatched if needed within operational timescales.

We will not deplete our operating reserves and frequency response holdings before despatching SBR, as this would make the system insecure. These balancing services would continue to be required to deal with any short-term operational issues that might arise.

Testing

SBR plant will be subject to monthly proving tests. These tests, together with 'last resort' despatch instructions will be used to measure the actual reliability of the plant, which will be compared to the tendered reliability factor in calculating any non-delivery charges.

Some plant may be required to undertake additional non-proving tests to ensure its availability (e.g. when re-commissioning after a period if inactivity, testing following maintenance etc).

Any such non-proving tests will be agreed in advance with the System Operator and undertaken so as not to disadvantage other plant operating in the market. The cost of any such tests will be funded by the SBR provider.

To promote transparency, we propose to notify the industry of any warming and potential despatch of SBR in advance via the BM Reports website, including any scheduled testing.

Payments

SBR providers would be paid monthly in arrears from November through to February for the provision of SBR.

Capability payments would be paid at the tendered price net of any non-delivery charges. These non-delivery charges would only apply if the actual availability falls below that declared in the tender, thus providing an incentive to maintain reliability to at least this level.

$$\textbf{Non Delivery Charge} = \textbf{2 x Capability Payment x } (1 - RF^{A} / RF^{T})$$

Where RF^{A} is the actual reliability of the plant measured through monthly proving tests and 'last resort' despatch instructions, and RF^{T} is the tendered reliability factor. These non-delivery charges would be capped at the capability payment such that payments would reduce to zero if the plant fails to deliver when called.

SBR providers would receive payment at their tendered rates for any Start-up/Hot Standby instructions, proving tests and utilisation instructed by the System Operator.

If instructed as a BM Bid / Offer acceptance after Gate Closure, the SBR provider would be required to submit BM prices consistent with utilisation prices in the contract (or at zero for non-proving tests),and SBR plant would receive payment through the Balancing Mechanism settlement arrangements. If instructed ahead of Gate Closure outside the Balancing Mechanism by requiring the submission of a non-zero Final Plant Notification (FPN), an Energy Contract Volume Notification (ECVN) would be submitted to remove any payment through the imbalance settlement arrangements, and utilisation would be paid at the tendered rate under the SBR contract.

Cost Recovery

As a Balancing Service, the external costs of SBR, including capability payments, availability (Start-up / Hot Standby) payments, testing / utilisation payments will be recovered via BSUoS charges. These costs would sit outside the Balancing Services Incentive Scheme (BSIS).