

Service Overview

Demand Side Balancing Reserve

Peter Bingham & David Preston – National Grid

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Overview

This note describes the Demand Side Balancing Reserve (DSBR) service that will be procured for the winters of 2014/15 and 2015/16 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 signing up large energy users who could reduce their demand (or run small embedded generation) during winter weekday evenings in return for a payment. This service would only be used in extreme circumstances, in the unlikely event that there is insufficient generation available in the market to meet demand.

Participation

DSBR is targeted at non-domestic consumers able to reduce/shift demand or run 'behind-the-meter' standby generation, and owners of small embedded generation or storage accruing to a supplier's consumption account.

DSBR can be provided by non-domestic consumers directly or by third parties, including suppliers, aggregators or other intermediaries.

DSBR is not intended for those consumers who already reduce/shift demand or run embedded generation during peak times on winter weekday evenings in response to pricing signals (e.g. Triad avoiders). Those with committed STOR contracts for these winters cannot participate.

DSBR can be provided by sites which are half-hourly metered and subject to the BSC settlement arrangements (i.e. > 100kW). A DSBR Unit represents one or more such sites providing the service.

DSBR providers would declare their capability to reduce demand (or increase generation output) against a baseline demand profile for at least one hour between 4pm and 8pm on working weekdays in the months November to February, having been given at least two hours notice.

The declared capability of a DSBR Unit must be >1MW, which may include an aggregation of smaller sites.

Volume Requirement

The maximum volume of DSBR and Supplemental Balancing (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 2014/15 requirement is met by DSBR which we propose to de-rate initially to 75%, the actual volume procured will be up to 440MW in order to meet the 330MW de-rated requirement.

Procurement Timeline

Given the modest requirement identified for winter 2014/15, this will be met via a pilot of the new DSBR service. This will provide the opportunity to test and evolve the new service, better understand its value and reliability, and further promote the development of new demand side resources.

The tender for winter 2014/15 DSBR pilot will open in June 2014 and run for 6 weeks, with contracts established from August 2014.

Up to 75% of the requirement for 2015/16 will be tendered in late summer/early autumn 2014, with at least 25% 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, particularly DSBR providers.

Tendering Process

An online portal will be available to allow service providers to register and tender individual DSBR Units made up of individual Meter Point Administration Numbers (MPANs). This will also be available to potential service providers with large sources of demand that are CVA registered or that operate as a demand Balancing Mechanism Unit.

Tenderers will be invited to declare a quantity of demand reduction¹ (in MW) that could be delivered relative to their baseline demand profile (the offered DSBR Capability), the settlement periods between 4 and 8 pm that this quantity could be delivered (the contracted service window), and the length of time this could be sustained within that window. They will be required to specify the individual MPANs at each site that make up the DSBR Unit, and the capability offered through each individual MPAN.

The baseline demand profile for each settlement period would represent the typical demand (or output) of the DSBR Unit in the winter weekday evenings of system peak demand.

Tenderers would indicate whether they wish to receive an optional setup fee to support them in establishing their demand reduction capability. This will be £10,000/MW (£10/kW) for demand reduction that can be sustained for at least two hours, and pro-rated for demand reduction that can be sustained only for a period of less than two hours (but greater than one hour).

They would also tender the Utilisation Rate at which they would wish to be paid for reducing demand from a range of nominal rates:

- £250/MWh (£0.25/kWh)
- £500/MWh (£0.50/kWh)
- £750/MWh (£0.75/kWh)
- £1,000/MWh (£1/kWh)
- £1,500/MWh (£1.5/kWh)
- £2,000/MWh (£2/kWh)

- £3,000/MWh (£3/kWh)
- £4,000/MWh (£4/kWh)
- £5,000/MWh (£5/kWh)
- £7,500/MWh (£7.5/kWh)
- £10,000/MWh (£10/kWh)
- £12,500/MWh (£12.50/kWh)
- £15,000/MWh (£15/kWh)

The higher the tendered rate, the less likely a tender is to be accepted and the less likely the DSBR Unit would be used.

Intermediaries & Customer Portfolios

To encourage and support intermediaries such as Aggregators, Suppliers and Customer Portfolio players in recruiting / managing a large numbers of smaller sites, these parties may tender to receive an Admin Fee. Each DSBR Unit tendered must comprise > 50 individual MPANs to qualify. This will be paid at the end of the winter season, unless the DSBR Unit fails a DSBR Performance Test.

Demand / Generation Scenarios

There are expected to be the following 3 scenarios of service provision:-

1. Demand suppression only (either through load reduction or use of back up generation to offset demand without exporting to the grid);
2. Operation of back-up / embedded generation only (exporting to the grid with no impact on demand); and
3. Operation of back-up generation to satisfy demand (reducing import) with the residual volume being exported to the grid.

Under Scenarios 1 and 2, a single MPAN (either import or export) should be tendered. However, Scenario 3 will require 2 MPANs to be tendered and the potential for double counting accounted for (i.e. the import MPAN volume should correlate to offset demand volumes and the export MPAN volume should correlate only to export levels once demand has been satisfied).

Tender Validation

In assessing each DSBR tender, we will undertake a number of desktop validation checks to verify that that the sites tendered are capable of providing the quantity of demand reduction offered. For volumes offered for each MPAN, National Grid will validate this against metered volume data across the offered Settlement Periods (SPs) within the top 10 peak demand days across the 2013/14 winter. This data will be sourced direct from the registered Data Collector for each MPAN.

¹ References to demand reduction include the ability to increase output from on-site or embedded generation

For demand MPANs, the validation will compare the offered volume against the lowest import across the offered SPs from the 10 peak days across the 2013/14 winter.

For generation MPANs, tenderers will be asked to declare a day when the unit ran at the tendered load. The validation will consider the output on this declared day as well as compare the offered volume against the highest export across the offered SPs from the 10 peak days across the previous winter.

Where there is a disparity between an MPAN's offered volume and 2013/14 data, National Grid will discuss this directly with the tenderer. National Grid will reserve the right to reduce / reject MPAN or DSBR offers subject to the validation processes.

For information the ten peak days for the 2013/14 winter were as follows:-

- o Tuesday 19/11/13
- o Thursday 21/11/13
- o Monday 25/11/13
- o Wednesday 27/11/13
- o Monday 02/12/13
- o Tuesday 03/12/13
- o Thursday 05/12/13
- o Friday 06/12/13
- o Monday 20/01/14
- o Thursday 30/01/14

Tender Assessment

The cost of each DSBR Unit will be determined as follows:

DSBR Cost = Declared Capability (MW) x (Setup Fee (£/MW) + Admin Fee (£/MW)) + ΔEEU (MWh) x Utilisation Rate (£/MWh)

Where ΔEEU is the anticipated reduction in energy unserved that would result from the additional DSBR capability, taking account of the settlement periods during which the declared capability can be delivered, the duration any demand reduction / generation can be sustained during this window, and the reliability of the service.

The unit cost will be determined as:

DSBR Unit Cost (£/MWh) = DSBR Cost / ΔEEU

In general, SBR and DSBR tenders 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). It may be necessary to deviate from this principle to ensure a

consistent profile of capability is established between 4pm and 8pm.

This process will continue until either the volume requirement is met or no economic tenders remain.

Any valid DSBR tenders remaining, that opted not to receive a setup or admin fee, would be accepted subject to the tendered utilisation rate being less than VoLL.

The results of each DSBR tender will be published after the tender event, including the quantity of DSBR procured for each Utilisation Rate and the associated set-up and admin fees incurred.

More information about the procurement and tender assessment process can be found within the DSBR Procurement Methodology statement published on our website.

Despatch Arrangements

Except for testing, DSBR Units will only be despatched by the System Operator after all feasible offers and bids in the Balancing Mechanism have been used, or expect to be used, in balancing the system. However, we will not deplete our operating reserves and frequency response holdings before despatching DSBR.

DSBR Units will be grouped into tranches defined by the tendered utilisation rate, with each tranche despatched in ascending price order.

DSBR Units may be despatched outside the contracted service window, but not outside the 4pm-8pm DSBR service window, recognising that in such periods the full DSBR capability offered might not be delivered.

DSBR would normally be despatched with at least 2 hours notice. However, DSBR may be despatched with shorter notice periods if needed, recognising that some providers may not be able to respond at such short notice.

A DSBR despatch instruction will specify the times between which the declared demand reduction capability should be delivered.

A MaxDSBR instruction could also be issued in emergency situations, requesting each DSBR Unit to provide as much demand reduction as possible.

The despatch solution is under development, and will include an application that can be downloaded to a Smartphone, Tablet or PC to receive DSBR despatch instructions.

The despatch solution will broadcast a despatch instruction (and warnings) to the service provider instructing the associated DSBR Unit to reduce demand between two specified times. SMS messaging will be used to alert providers and individual site of any despatch instruction issued via the despatch system.

DSBR despatch instructions (except tests) will be notified to the industry.

More information about the despatch process will be available in the DSBR Operational Methodology to be published later this year.

Measurement

The quantity of demand reduction delivered will be calculated from half-hourly settlement data as the difference between the actual metered demand (or output) of the DSBR Unit and the baseline demand profile, and this will be calculated for each half hour of the despatch instruction.

The baseline demand profile for each DSBR Unit will be calculated as the average of the consumption (or output in the case of a generation MPAN) in the corresponding settlement period in the previous ten days of highest transmission system demand on which demand reduction was not called from that DSBR Unit on a rolling basis over the previous 12 months.

Metering data to enable validation and settlement will be provided by Data Collectors (BSC Mod P299).

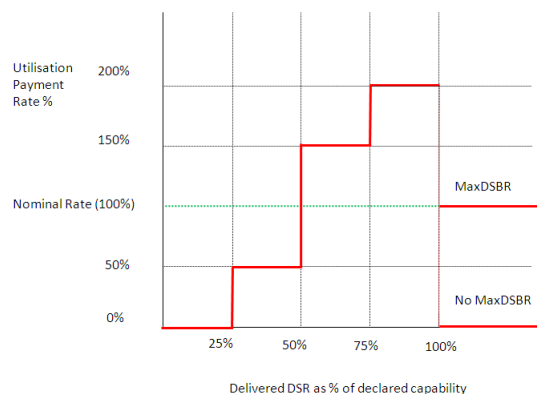
Payments

Those who elected to receive the setup fee will be paid at the start of the winter availability season. Admin fees for intermediaries and customer portfolio players will be paid at the end of the winter availability season, unless the associated DSBR Unit fails a DSBR Performance Test.

DSBR providers will be paid for utilisation within two months after the month in which they were despatched.

Except under certain circumstances, the utilisation payment to each DSBR Unit will be calculated according to a stepped payment schedule whereby: the first 25% of demand reduction is not paid; the second 25% is paid at 50% of the nominal utilisation rate; the third 25% at 150% of the utilisation rate; and the last 25% being paid at 200% of the utilisation rate.

Demand reduction will be paid up to the declared capability at the nominal utilisation rate if called with less than two hours notice, if called less than 2 hours after the last despatch instruction ended, or was despatched outside the contracted service window. If a MaxDSBR instruction is issued, the total demand reduction delivered will be paid at the nominal utilisation rate.



The costs of DSBR, including setup fees, utilisation payments and any admin fees would be recovered through BSUoS charges. These costs would sit outside the Balancing Services Incentive Scheme (BSIS) and would be subject to Ofgem approval.

Testing

A sample of DSBR Units will be tested over the winter availability season. Those selected for testing will be given at least two hours notice and despatched for at least 1 hour. Utilisation payments will be paid in accordance with the arrangements described above.

If a DSBR Unit in receipt of a setup or admin fee fails to deliver 75% of their declared demand reduction capability when despatched for a shortage event or in response to a sample test, National Grid will have the right to investigate whether the DSBR provider has established the capability to provide the DSBR service and have the right to schedule a DSBR Performance Test without making a utilisation payment

A DSBR Performance Test would be called with at least 2 hours notice, and instructed according to the contracted service window and declared sustainability duration. Such test would be deemed to have failed if less than 75% of the declared capability is delivered over the duration of the instruction. Following such a failure, a second DSBR Performance Test may be scheduled.

National Grid would have the right to recover the setup fee in the event that a second DSBR

Performance Test is not successfully completed.
Any admin fees due in respect of that DSBR Unit
would also become void.

Imbalance Prices

The cost of DSBR was not initially designed to feed into the calculation of cash-out prices ahead of the implementation of Ofgem's Electricity Balancing Significant Code Review (EBSCR). However, following responses to the public consultations issued by NGET in regard to the service, and given that the issue of how to price DSBR into cash-out is out of scope of the EBSCR, a BSC issue group (Issue Group 56) has been established to consider how DSBR should best feed into the imbalance calculation.