

**The material in this paper is work in progress and is not a statement of government policy or policy intent**

## **DSR IN THE TRANSITIONAL ARRANGEMENTS AND THE CAPACITY MARKET**

This paper answers outstanding policy questions on the participation of DSR in the transitional arrangements and the Capacity Market. The first section covers short questions and answers and the second and third cover more detailed topics.

### **Section 1: Short Questions**

#### **How do we ensure that only the generators that need the transitional arrangements qualify?**

There are a number of relatively large generators that are just under the size requirement for licensed generation (100MW), but nevertheless operate within the energy market and are mature participants. The volume of capacity procured through the DSR transitional arrangements will be capped and it is important to ensure the programme supports nascent industry participants, rather than established players.

DECC propose the following restrictions on generation participating in the transitional arrangements:

1. Only non-licensed generation (up to 50MW) can participate, not license exempt generation (50MW to 100MW) or licensed generation.
2. Generation should be connected to the distribution, not transmission network
3. The electricity generated should accrue to a supplier's consumption account, rather than having a generation account.
4. Generation should not have previously participated in the energy market or the balancing mechanism (but can participate in other balancing services such as STOR).

The review will monitor the composition of the DSR that comes forward with a view to amending the criteria if the aims of the programme are not being met.

#### **What is the utilisation fee for the DSR transition and enduring Capacity Market?**

None. DSR providers will be expected to fund the dispatch of their resources from their capacity payments and any other contracts (e.g. from STOR) that they take on. DSR providers would need to factor in the cost of dispatch into their auction bids. There will not be a separate utilisation payment from the Capacity Market for any resource, either for tests or scarcity events.

#### **Who will decide if the guarantee to procure a minimum amount in the year ahead auction is to be withdrawn, and how much notice would they have to give?**

This is a decision for Ministers as it is a policy decision. It will be made in light of analysis on the relative costs of DSR in comparison to other capacity. The decision will be made based on whether the guarantee is necessary and providing consumers with value for money over the long term. The statutory review will contain this analysis and the rolling decision on whether to retain the minimum.

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## **Section 2: Baseline DSR - Determining the Volume of DSR Delivered**

National Grid has developed the methodology based on expert advice, as always policy decisions remain DECC's responsibility.

### **Background:**

In order to determine whether a DSR provider has delivered their obligation during a stress event, its consumption of electricity from the grid during the stress event will be compared to its consumption at other, similar times. This is known as an 'X of Y' methodology. An example would be to look at 5 (X) of the last 10 (Y) similar days (e.g. working days) at the same time of day.

DECC have asked National Grid to propose options for the details of this X of Y methodology for both the transitional and enduring arrangements for DSR in the capacity market. This note suggests a methodology that could be used, noting that other methods are available and that it would be appropriate to review the effectiveness of the chosen methodology as the transitional arrangements progress.

### **Consistent Approach:**

The intention in creating the baseline methodology is to maximise participation of DSR, by minimising costs and the complexity of arrangements. As such, the baselining approach should rely on existing arrangements for metering in the BSC to ensure that data is available and reliable<sup>1</sup>, and avoid the need to develop and implement specialist metering arrangements. The same baselining method will be employed in the Demand Side Balancing Reserve (detailed in Ofgem's 27th June open letter), the transitional arrangements and the Capacity Market.

Under the arrangements set out in the BSC, data is gathered by Data Collectors acting on behalf of the supplier. Data Collectors then provide this data to the supplier so that supplier can bill the customers and to Elexon via a data aggregator so that it can determine the quantities that the supplier is deemed to have taken from the wholesale market in order to supply its customers. The obligation in the BSC (section L5.2.4) may need to be extended to ensure the data is available for Capacity Market purposes.

### **Proposed Methodology:**

To quantify DSR, an estimate is made of the expected demand that would have been taken without the DSR action. This is done by considering demand when expected behaviour of providers is likely to have been similar. The methodology used to build up this should aim to reflect time of day, day of the week and time of year; it should also capture typical consumption pattern to avoid perverse incentives to increase demand once a capacity market warning has been issued.

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<sup>1</sup> By relying on the existing arrangements for metering in the BSC, not only will the required data be available but the tried and tested performance assurance framework for settlement metering and data collection will ensure that the data is reliable.

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Considering a single settlement period, unreduced consumption would be calculated from:

- **Demand in the same SP on the same day of the week for the last 6 weeks, giving 6 samples of day of the week and time of day**
- **Demand in the corresponding<sup>2</sup> SP the year before and the demand in the SP one week earlier and later, giving a further 3 samples which capture time of year**
- **Demand in the same SP on 10 of the previous 14 days, to capture ongoing consumption and to mitigate incentive to inflate demand for a short period to increase potential reduction.**

Data samples should be corrected to reflect delivery of a contracted balancing service and if a provider has recently entered the Electricity Demand Reduction programme.

In the event of a stress event demand data in periods other than the baseline periods will be checked to confirm that there has been no baseline manipulation. This would ensure that demand had not increased following a capacity market warning. Where a demand reduction is delivered through some but not all of the MPANs at a given site, the data for all MPANs at the site would be examined to determine that a genuine demand reduction has been delivered

#### **The methodology expressed as a formula:**

The demand reduction programmes in the US, such as New England, has been considered as a potential basis for the estimation of baselines for the pilot scheme. Thus, the baseline for “Demand Response Baseline” for Day D+1 would be calculated as follows:

$$\text{Demand Response Baseline D+1} = 0.9 * \text{Demand Response Baseline D} + 0.1 * \text{Demand D}$$

Note that where D is a non-working day or a day on which demand response has been called then the calculation is ignored and the baseline for day D is repeated for day D+1.

Whilst provisions should be included in DSR agreements to prohibit behaviours that increase demand reduction quantities which would not have occurred in the absence of an arrangement to provide DSR, it is nevertheless undesirable that any baseline adjustments give an incentive to increase demand.

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<sup>2</sup> Same time of day and day of the week

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### **Section 3: The level of the bid bond**

#### **What is the level of the bond that DSR have to pay to enter the auction (transitional arrangements and enduring scheme)?**

National Grid has provided the information on the costs of new generation, however the decision on the level of bid bond to set is a policy decision and is made by DECC. The analysis will be scrutinised to ensure impartiality.

#### **Background:**

The Capacity Market design includes a requirement for some DSR providers to post a Bid Bond as part of the pre-qualification process. Where the DSR pre-qualification is based solely on provision of data, it is considered necessary to support this with lodging of a bond to ensure there is an incentive to provide correct information and to ensure providers have the intention and ability to deliver capacity.

A new entrant generator will have invested significant sums as development costs prior to entering the CM auction; where it is connected to the transmission system it will have lodged securities with National Grid to cover liabilities for the required works for its connection agreement. This level of financial commitment provides some confidence in the ability and intent of the provider to deliver capacity as contracted.

The bid bond for DSR should be set to provide similar confidence without introducing a barrier to entry to the capacity market.

#### **Financial Commitments of new generation:**

The financial commitments of generation prior to connection date fall into four main categories:

- Application fees
- Securities
- Consents
- Construction

The costs associated with each will vary from project to project, depending on factors including the size of the generator, the location and the complexity of the works to connect the generator to the transmission system.

#### **Proposal:**

There is no requirement for construction to have started by pre-qualification and so the costs need not have been incurred by that time. Additionally, the costs of the securities are a commercial matter for individual providers and are likely to vary to greatly to be a useful metric. DECC therefore proposes that only the application and consent costs are factored into the bid bond.

**This gives a figure of £4,420 per MW**

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For example, this would oblige a 2MW DSR provide to lodge a bond of £8,840. The analysis underpinning these numbers is in the Annex.

**Questions for the Expert Group:**

1. Is the proposed methodology correct for setting the bid bond?
2. Does the proposed number provide the appropriate level of surety of delivery while not creating a significant barrier to entry?

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### **Annex: Analysis underpinning the calculation of the bid bond**

#### **Application Fees:**

This fee is paid to National Grid by connectees and covers the cost of work required to process the application and develop a connection offer. This work would include power system analysis of the proposed connection to determine the works required for a connection compliant with the Grid Code and the Security and Quality of Supply Standard. Payment of the fee is an obligation set out in the Connection and Use of System Code (CUSC). The fee varies based on type of plant, location and size up to a cap of £400k; the details are set out annually in the Statement of Use of System Charges.

The system is divided in to three geographical areas<sup>3</sup>:

- A. Wales and much of England (boundary to north of Leeds)
- B. Northern England and southern Scotland (boundary in Edinburgh area)
- C. North of Scotland

The fee is calculated as App Fee = Base Fee + (Rate \* Size of connection), where the base fee and rate are set out in the table below:

Zone	Size	Base Fee (£)	Rate (£/MW)
A	<100	15,000	100
A	100-1320	25,000	55
A	>1320	80,000	15
B	<100	25,000	180
B	100-1320	40,000	90
B	>1320	120,000	35
C	<100	35,000	260
C	100-1320	55,000	125
C	>1320	160,000	55

The table below shows the fee for a 500MW plant connecting in Zone A, B and C:

Zone	App Fee (£)	Fee per MW (£/MW)
A	52,500	105
B	85,000	170
C	117,500	235

This translates to a per MW fee in the range of £105/MW to £235/MW, an average of £170 per MW.

<sup>3</sup> Map and further information provided in Schedule 3 of Statement of Use of System Charges(pg 22 of attached link) [http://www.nationalgrid.com/NR/rdonlyres/AA6D66EB-6FF5-4FA0-B0FD-A1DD243726A2/61074/UoSCI9R0\\_FinalCombinedVersion1.pdf](http://www.nationalgrid.com/NR/rdonlyres/AA6D66EB-6FF5-4FA0-B0FD-A1DD243726A2/61074/UoSCI9R0_FinalCombinedVersion1.pdf)

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**Consents:**

Connectees are not required to submit information to National Grid on consents or planning permission. This figures provided are based on information which is publically available and National Grid's experience of gaining consents for construction of transmission assets.

The costs associated with submitting an application are typically a low proportion of the total. Consultation costs and costs for Environmental Impact Assessment vary both from project to project, depending on size, location and potential impact on the local area. In addition, a developer may face ad hoc costs to meet conditions to manage or mitigate the impact on the local community; these vary significantly by project.

Much of the generation entering the capacity market will fall under scenario 2 in the table below. Again using the example of a 500MW generation would result in a cost per MW in the range £1,500/MW to £7,000/MW. Again, taking a mid-range of the most likely scenario gives £4,250 per MW.

	Stage			Total Spend	
	Pre-application and scheme development	Application / Examination	Post-application / construction	Low scenario (£k)	High scenario (£k)
<b>Scenario 1</b>  <i>(small generator consented under mainstream planning process) &lt;50MW onshore, &lt;100MW Offshore</i>	Environmental impact assessment (EIA): £50k – £100k  Consultation: £50k – £100k	Application fee: £50-100k (capped at £250k)  Planning application documents (exc. EIA): £50k	Mitigation and planning obligations: £250k	450	600
<b>Scenario 2</b>  <i>(nationally significant project – small/less complex)</i>	Environmental impact assessment (EIA): £100k – 500k  Consultation: £100k – £500k	<a href="#">Application fee: £163,870 (taken from Fees Guidance worked examples)</a> Planning application documents (exc. EIA): £50k – £100k Examination / legal support: £100k – £250k	Mitigation and planning obligations: £250k – £2m	763	3,513

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<b>Scenario 3</b>  <i><b>(nationally significant project – large/more complex)</b></i>	Environmental impact assessment (EIA): £2.5m	<a href="#">Application fee: £565,660 (taken from Fees Guidance worked examples)</a>	Mitigation and planning obligations: £2 – £10m		
	Consultation: £1 – 3m	Planning application documents (exc. EIA): £100k – £250k		6,665	17,815
	Planning performance agreements: £250k – £1m	Examination / legal support: £250k - £500k			