Distribution Flexibility Service

# Baselining Guidance

July 2025

SP Energy Networks

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# What is Baselining? – Our Approach

Baselining refers to establishing a baseline level of energy consumption or generation for a Distributed Energy Resource (DER), which is then used to measure the change (delta) when flexibility services are activated. Essentially, it's a method to quantify the impact of flexibility providers on the electricity grid.

At SP Energy Networks, we have adapted our baselining approach to align with all the DSOs in the UK and are the first to adopt the ENA technical working group standardised baselining methodology. The tables below show the type of baseline we will be utilising for each type of asset whether they are a domestic or industrial and commercial asset.

**Types of Default Baselining Methodologies (DBM) Used for Domestic Assets**

| Asset Scale | Metering Arrangement | Technology Type | DTD / GTU | DTU / GTD |
|---|---|---|---|---|
| Domestic | Asset Level | Schedulable Generation | Zero | Asset Capacity (no de-rating) |
| | | Intermittent Generation | | |
| | | Storage | | |
| | | Heat Pump | (Asset Level) Fixed Reference | |
| | | EV Charger DSR | | |
| | | EV Charger V2G | | |
| | | Flexible Site Demand | | |
| | Point of Connection | Schedulable Generation | (Flexible Site Demand) Fixed Reference | Asset Capacity (no de-rating) |
| | | Intermittent Generation | | |
| | | Storage | | |
| | | Heat Pump | (Asset Level) Fixed Reference + (Flexible Site Demand) Fixed Reference | |
| | | EV Charger DSR | | |
| | | EV Charger V2G | | |
| | | Flexible Site Demand | | |

**Types of Default Baselining Methodologies (DBM) Used for Industrial and Commercial Assets**

| Asset Scale | Metering Arrangement | Technology Type | DTD / GTU | DTU / GTD |
|---|---|---|---|---|
| Domestic | Asset Level | Schedulable Generation | Zero | Asset Capacity (no de-rating) |
| | | Intermittent Generation | | |
| | | Storage | | |
| | | Heat Pump | Nomination | |
| | | EV Charger DSR | | |
| | | EV Charger V2G | | |
| | | Flexible Site Demand | | |
| | Point of Connection | Schedulable Generation | Zero | Asset Capacity (no de-rating) |
| | | Intermittent Generation | | |
| | | Storage | | |
| | | Heat Pump | Nomination | |
| | | EV Charger DSR | | |
| | | EV Charger V2G | | |
| | | Flexible Site Demand | | |






# What Do the Methodologies Mean?

## Asset Capacity (no de-rating)

This methodology assumes the participating DER operates at its full rated capacity during the flexibility event, irrespective of actual operational conditions.

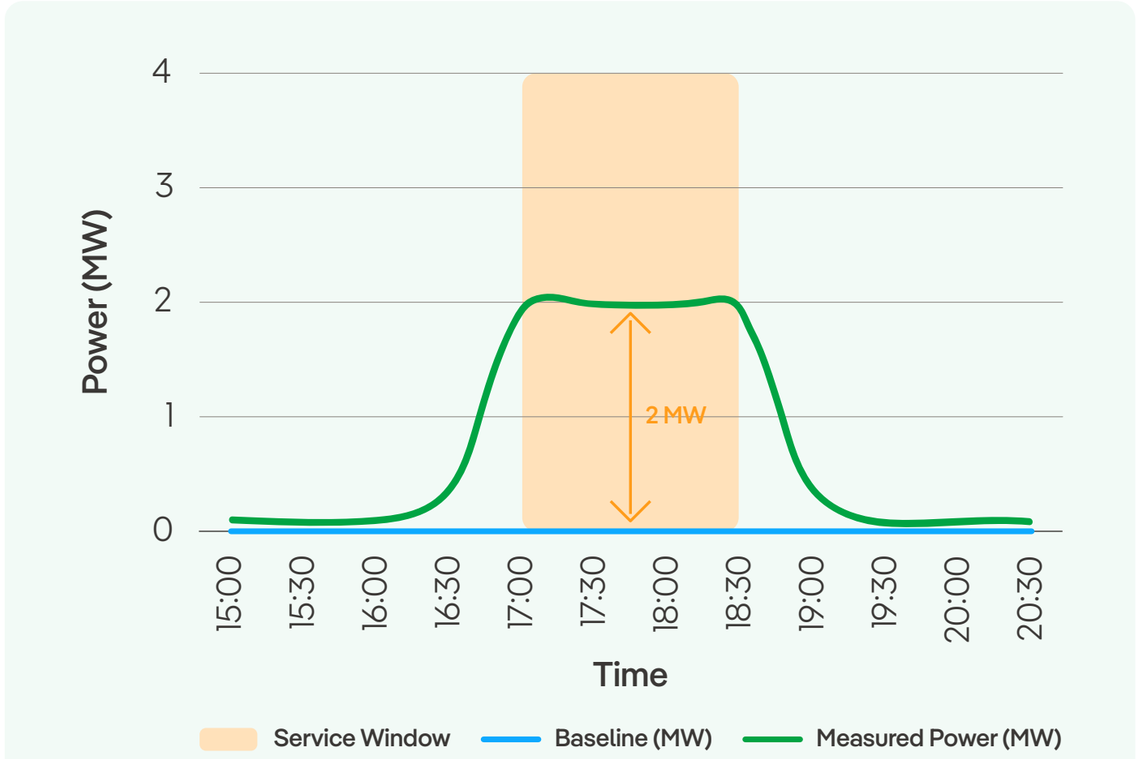
A variation of this methodology is the Asset Capacity (with de-rating) which is based on the expected capacity rather than full rated capacity.

A worked example of Asset Capacity (no de-rating) is shown below for a Schedulable Generation DER which has a full rated export capacity of 5MW. The Generation DER has a Generation Turn Down contract for 2MW.

## Zero

The baseline energy consumption or generation for this methodology is set to zero, meaning no energy usage or production is assumed in the absence of the utilisation event.

In the example shown to the right, the DER is deemed to have provided a 2MW Demand Turn Up service as the measured output during the Service Window.



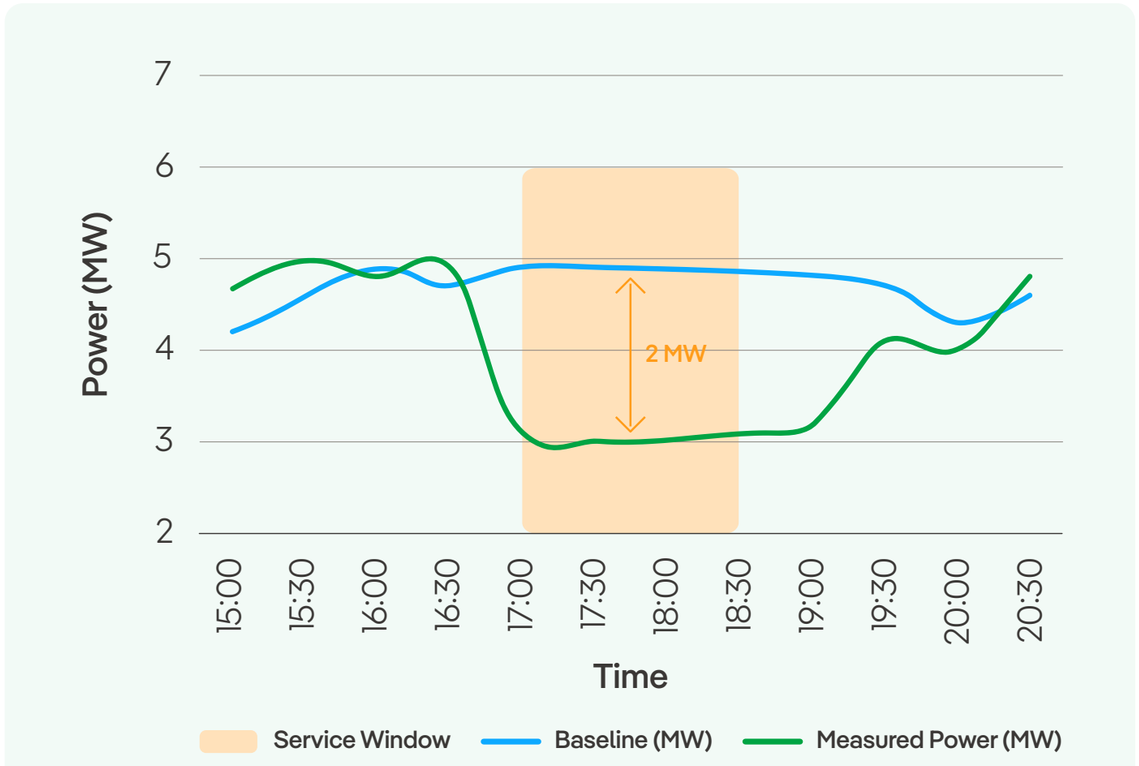

## Fixed Reference

This methodology uses a fixed daily profile derived from either the observed energy behaviour of a representative group of DERs that represents normal operating behaviour or a System Operator's network planning assumptions.

The reference is "fixed" as this is set and published ahead of time so FSPs can understand what baseline they will be assessed against.

In the example shown to the right, the baseline value represents a reference, non-smart charging behaviour for a large group of domestic EV charging points.

It is this representative behaviour that is used to set the baseline value of 5MW to assess the level of Demand Turn Down provided by the DER. The measured output during the Service Window is 3MW, therefore it is deemed to have delivered 2MW.




**Categorisation Notes:**
(Asset Level) Fixed Reference – this category is used where a System Operator provides a reference baseline for a specific type of DER. For example, this could be a specific EV charger or heat pump profile.

(Flexible Site Demand) Fixed Reference – this category is just like the (Asset Level) Fixed Reference, but this is based on a reference value for a site (typically a domestic household). You will also see this category used from domestic generation and storage technologies where the metering is a "Point of Connection". This is because the asset level baseline for generation and storage Generation Turn Up is "zero" but the boundary meter will also pick up the general domestic load, so this approach helps account for this.

(Asset Level) Fixed Reference + (Flexible Site Demand) Fixed Reference – this category is used where the metering arrangement is at the point of connection for a domestic property, but this property may have several different DERs (like EV chargers / heat pumps) behind the boundary meter. By adding together the Flexible Site Demand (i.e. household) reference and any asset level references this helps create a more accurate baseline.

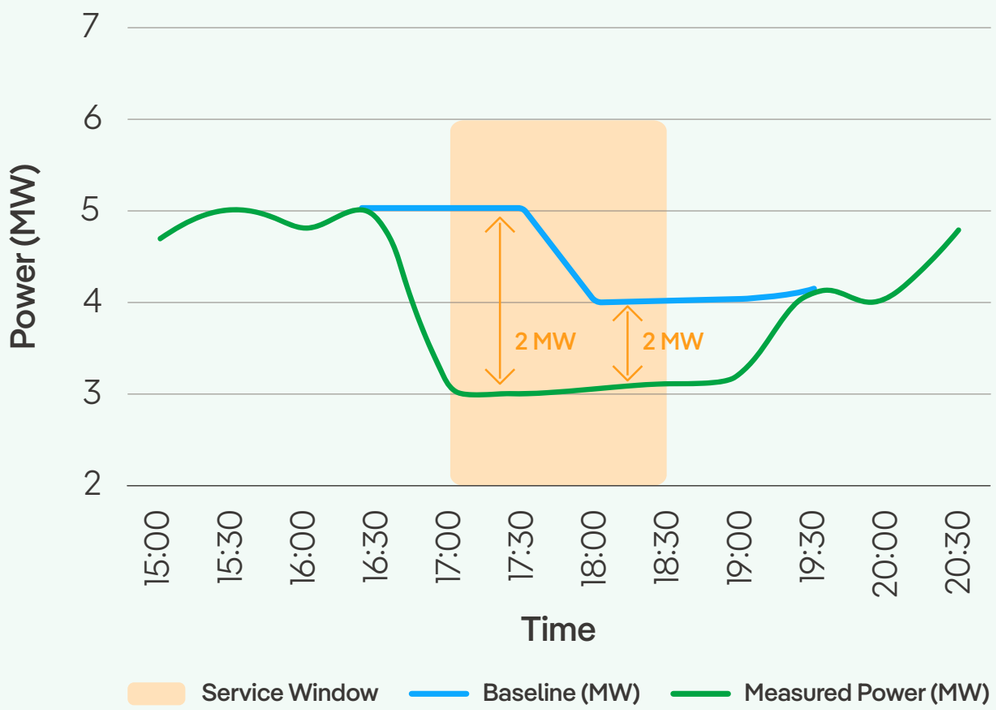
## Nomination

This methodology uses a proposed set of meter values by the FSP based on their expected or usual operations for a future availability window that then becomes a utilisation event.

Nomination values may differ over the Service Window or be a single value that is applied for the whole Service Window.

As nomination baseline methodologies rely on FSPs to propose the values used, there are accuracy standards that the System Operator requires the FSP's nominations to adhere to, ensuring that the nominated values accurately reflect normal operating behaviour. FSPs are also required to submit "Nomination Justifications" to summarise the methodology they use to create a nomination value. This justification is used by the System Operator to assess if the FSP is adhering to good industry practice in their nomination calculation. In the event of there being no 'non-event days' for nomination accuracy to be tested.

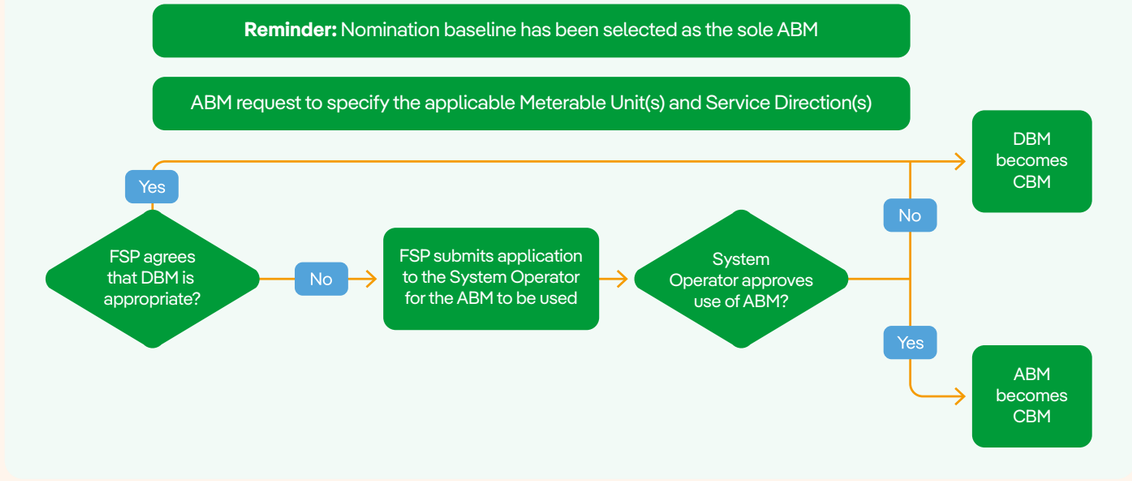
In the example shown to the right, a variable nomination value has been proposed by the FSP (5 MW for earlier part of the Service Window and 4 MW for the later part). In this scenario the DER is paid for 2 MW of Demand Turn Down for the first part of the Service Window and 1 MW for the later part.




## Alternative Baselining Methodology (ABM)

The ABM is a secondary methodology that an FSP may request in place of the default methodology (DBM) from the tables above, where the default is not considered appropriate by the FSP. Use of an ABM is subject to approval by the System Operator, based on the justification provided.

The ABM methodology requested can solely be a **Nomination methodology** when the FSP believes that the primary methodology does not correctly align to the actual behaviour of their assets. Below is the process required to request the ABM:




# In Practice

Currently, the provider is still required to fill out each half hourly settlement period for both their actual and baseline readings in the settlement process. We will ask providers to fill in their baseline using the type of DBM above – aka if asset requires Zero Baseline fill in sheet with 0 in each HH period.

We are in the process of updating our systems to ensure that this will be pre-filled, and providers will not need to fill in any baseline details and will update this guidance when that work is complete.

For fixed reference baselines, you will find below a time series for value you can use for EV and Domestic assets. For all other assets requiring fixed values we are still in the process of developing these.

| Time | EV (7.36kW charger) | Domestic |
|---|---|---|
| 00:00 | 1.5 | 0.7 |
| 00:30 | 1.3 | 0.6 |
| 01:00 | 1.1 | 0.5 |
| 01:30 | 1.0 | 0.5 |
| 02:00 | 0.8 | 0.4 |
| 02:30 | 0.7 | 0.4 |
| 03:00 | 0.6 | 0.4 |
| 03:30 | 0.6 | 0.4 |
| 04:00 | 0.5 | 0.4 |
| 04:30 | 0.5 | 0.4 |
| 05:00 | 0.5 | 0.4 |
| 05:30 | 0.4 | 0.4 |
| 06:00 | 0.4 | 0.4 |
| 06:30 | 0.4 | 0.5 |
| 07:00 | 0.4 | 0.5 |
| 07:30 | 0.4 | 0.6 |
| 08:00 | 0.4 | 0.7 |
| 08:30 | 0.5 | 0.9 |
| 09:00 | 0.5 | 1.0 |
| 09:30 | 0.5 | 1.1 |
| 10:00 | 0.6 | 1.2 |
| 10:30 | 0.6 | 1.2 |
| 11:00 | 0.7 | 1.3 |
| 11:30 | 0.7 | 1.3 |

| Time | EV (7.36kW charger) | Domestic |
|---|---|---|
| 12:00 | 0.8 | 1.3 |
| 12:30 | 0.8 | 1.4 |
| 13:00 | 0.9 | 1.4 |
| 13:30 | 0.9 | 1.3 |
| 14:00 | 0.9 | 1.2 |
| 14:30 | 1.0 | 1.2 |
| 15:00 | 1.0 | 1.2 |
| 15:30 | 1.2 | 1.2 |
| 16:00 | 1.3 | 1.4 |
| 16:30 | 1.6 | 1.6 |
| 17:00 | 1.8 | 1.7 |
| 17:30 | 2.1 | 1.8 |
| 18:00 | 2.3 | 1.7 |
| 18:30 | 2.5 | 1.7 |
| 19:00 | 2.5 | 1.6 |
| 19:30 | 2.5 | 1.5 |
| 20:00 | 2.4 | 1.5 |
| 20:30 | 2.3 | 1.4 |
| 21:00 | 2.2 | 1.4 |
| 21:30 | 2.1 | 1.3 |
| 22:00 | 2.0 | 1.2 |
| 22:30 | 1.9 | 1.1 |
| 23:00 | 1.8 | 0.9 |
| 23:30 | 1.7 | 0.7 |

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