ESO

Increasing flexibility from small-scale assets (<1 MW) in the Balancing Mechanism – Guidance Note

Summary

On 6th February 2024, we announced that we will be allowing a capped cohort of assets (up to 300MW) - each with an individual capacity of less than 1MW - into the Balancing Mechanism (BM) as part of an aggregated unit with relaxed requirements for operational metering. This initiative will run in parallel to an external independent review which aims to highlight metering standards required for the safe, secure and economic operation of the system, considering what is appropriate/achievable for all distributed flexible assets. The outputs of the review, alongside other workstreams such as the Distributed Energy Resource Visibility project, the Flexibility Market Strategy and Open Networks projects, will inform the enduring operational metering requirements for the BM.

When the announcement was made, we agreed to provide further clarity and work with industry stakeholders on the criteria for units entering the BM under this initiative. We are asking for providers to provide feedback on this guidance note by the 13th March 2024 via the consultation response form, we will then consider this and aim to publish a finalised version the following week on the 20th March 2024. We will also hold a webinar before the feedback window closes, to allow stakeholders to ask questions regarding the criteria below to assist them with their responses.

We are aware of many ongoing conversations with providers currently and will continue to facilitate units entering the BM under this initiative whilst we finalise this guidance document. In the unlikely event that an unanticipated issue arises that leads us to reassess the criteria below, we will reach out to stakeholders to discuss this and propose any changes.

Criteria

1. Applicable asset types

Generation or demand assets with a registered capacity of < 1 MW will be eligible to enter this trial under this initiative, they must still form part of an aggregated unit > 1 MW in capacity. We expect assets to typically meet one or more of the criteria stated below.

- Connection point – 415 V and below (no specific connection agreement in place for the asset)
- G99 Type – Category A
- Primary purpose of the asset is to provide a consumer[1] with a service/resource e.g. Heating a home or transportation
- Examples – EV Charging, heat pumps, Small-scale batteries and rooftop solar or wind turbines.

2. 300 MW cap

This 300 MW combined volume cap for all assets entering this initiative has been agreed in line with being able to assess the impacts of relaxed operational metering standards on operating the system. We propose the following criteria to ensure fairness and consistency for all providers who wish to enter the BM through this initiative, as well as providing valuable learning from a wide range of asset types.

- **Provider cap –** 50 MW cap per provider[2]

[1] https://www.nationalgrideso.com/future-energy/future-energy-scenarios-fes/fes-sections/energy-consumer
[2] A provider is defined as the trading agent that will be interacting with the ESO. If we have reason to believe that asset owners are working across multiple providers, we will review this definition.

ESO

- **Technology type cap** – Ringfenced 50 MW of capacity for non-domestic assets

Aggregating large numbers of small-scale assets, whose primary purpose is to provide a consumer with a service/resource, frequently leads to an overall total capacity far exceeding the practical capacity available at any one time. Therefore, to ensure maximum flexibility participation, we propose the caps stated above are measured via a **maximum deliverable capacity**, as opposed to basing this on the overall registered capacities of the units. We propose the following additional process to implement this approach.

- **Registering capacities** – When registering a unit, a provider will provide the overall registered capacities (generation/demand or both) of each of their assets making up an aggregated unit, as per current process. In addition, we propose providers submitting de-rated values at the unit level for the maximum deliverable capacities (generation/demand or both) at any time. These maximum capacities will be used to create the units in our systems, meaning a provider will not be able to submit Maximum Export Limits/Minimum Import Limits that exceed these.
- **Example** – A provider registers 1,000 EV charge points in an aggregated unit, each with a registered demand capacity of 7 kW respectively. Therefore, the overall registered capacity of the unit would be 7 MW. The provider has confidence that a maximum of a third of the assets will be available at any one time, therefore submits a de-rated maximum deliverable demand capacity of 2MW. This unit will be registered in ESO systems with a capacity of 2MW, which will feed into control room scheduling and dispatch systems and processes. (NOTE – we will continue to work in whole integers and therefore round down to the nearest MW).

3. Operational metering requirements

Operational metering requirements are highlighted in a provider's bilateral contract with the ESO. For smaller scale flexible assets, the metering requirements are typically captured in Appendix F5 of a provider's Virtual Lead Party agreement or Supplier Additional BMU agreement. We propose the agreement now including the following updated table in the Appendix F5 for any provider entering the BM under this initiative. Updated BM participation criteria for smaller aggregated assets will include the following table in Appendix F5.

∑ Aggregated Signals (Including sub-assets < 1 MW)	Range	Scale (unit)	Accuracy	Resolution	Refresh Rate
Active Power	- 50 MW to 50 MW	MW	Sub-asset measuring within 2.5% of meter reading	1 kW	1 per second at aggregate level. Up to 1 per 60 seconds at sub-asset
Circuit Breaker Simulated Indications	Open/Closed	0/1	Not Applicable	Not Applicable	On Change

Following feedback from providers, we understand that measurements from assets are not typically synchronous with one another. Therefore, we have assumed that measurements taken at the sub-asset level will in general be uniformly distributed across a 60 second period (or less if measuring at a higher frequency), and so readings would naturally feed an aggregation process asynchronously to create a second-by-second feed for the ENCC.

4. Data gathering and learnings

As has been undertaken during the small-scale aggregated assets trial, we propose to continue assessing providers' abilities to accurately forecast and submit data parameters to the ENCC. This assessment will evaluate providers' abilities to meet the fundamental requirements to operate in the BM. In this way, we will learn together with providers what requirements may require further consideration, ultimately benefitting both providers and the ESO.

The areas we will be focused on are:

- Accuracy of Physical Notification

ESO

- Accuracy of Maximum Import and Export Limits
- Accuracy when responding to Bid/Offer instructions.
- Accuracy of Dynamic Parameters (e.g. run up/down rates)
- Reliability of Operational Metering Feeds

We also wish to collaborate with providers on operational metering aggregation methodologies, to feed into the external independent review of operational metering standards.

We appreciate that a provider may initially wish to participate with a hybrid unit to ensure minimum volumes to enter the BM (1 MW in a single GSP group) can be met. In these instances, we are willing to work with that provider to assess the actual behaviour of the small-scale assets against the above criteria, through either live or offline analysis.

5. Registration

Registration will follow the same process as currently; this is captured here on our website. However, we will require the additional **maximum deliverable capacities** to be declared for each unit, this will be a single value for demand or generation (or both if a bi-directional unit).

The only contractual difference when registering will be in the bilateral contracts, which will contain an updated Appendix F5 detailing the updated metering arrangement as highlighted in this document above. For providers who already have an agreement in place with the existing Appendix F5 in place, you will need to agree to an updated agreement that highlights the updated metering standards and volume caps highlighted above.

Frequently Asked Questions

What are the other requirements that need to be met?

All requirements to operate in the Balancing Mechanism are captured in provider's agreements when they register with the ESO. Our registration guide online gives the best view of these requirements, including the steps required for Elexon processes.

Why is there a limit per provider?

We want to ensure we have a level playing field for all potential providers to access this initiative. We want to understand flexibility coming from a wide range of technology types and sizes, being managed by providers with different approaches to providing flexibility to the system from consumer energy resources. We therefore see a cap per provider the best way to ensure this initiative provides this insight and isn't focused on one particular technology type or flexibility approach.

Why is this only for assets with a capacity < 1 MW?

We have heard from providers who operate assets in this range and have the capability of providing flexibility to the energy system, that the current operational metering standards act as a financial prohibitive barrier to enter the market. There is also a disconnect between the current standards and other measurement standards that have dictated the specifications used to manufacture flexible assets in this range. Therefore, we understand these standards are limiting flexibility from assets in this range entering the market. We also recognise that we need to act fast to articulate our metering requirements clearly for the future energy system, as clear signals need to be sent to manufacturers. The wider independent external review into operational metering standards will be considering the full range of asset sizes, aiming to understand where metering standards do not align and what are the implications of flexibility from these technology types operating in the BM.

Why are you continuing to review data and seek learnings?

This initiative is a big step in getting flexibility into the BM from energy sources that haven't typically operated in this market before. We recognise the scale of flexibility from this sector and the pace with which it is growing currently, therefore we understand the need to show ambition around the role we envisage this flexibility playing in balancing the system. We are still in a learning phase as this new pool of flexible assets grows and therefore want to use this as an opportunity to learn as we go. We see this as a vital time to understand how these assets will operate, both in the BM framework but also as part of a wider interaction

with the energy system. We also see this as an opportunity to share learnings around key elements of the BM across different providers and technology types, looking to tackle these together and come up with solutions to issues we may not have thought of yet.

Is there an end date to this initiative?

It's our ambition to retain this as an enduring initiative, with up to 300MW of small-scale assets that enter, remaining in the BM. Following the independent review of operational metering standards, new criteria may be determined which may, or may not, match those highlighted above. All units registering for the BM following the review will be subject to the standards that are agreed. Once we have agreed an external provider for the review, we will be sharing details around timelines by which we expect to have this completed.

Why are you adding in an additional data parameter and how should providers determine this?

We have heard from providers and seen through the ongoing trial that the maximum flexibility available from units comprising of smaller-scale assets is often much lower than the actual registered capacity. This is due to the activity of these assets revolving around consumer behaviour and therefore the primary function being for other purposes, such as heating or transport. To ensure we maximise the amount of flexibility that enter the BM, we want to ensure we focus on what the units can deliver in terms of flexibility, as opposed to the combined registered capacities which will never be reached as assets won't be all consuming/generating at the same time. We have taken the view that providers have a much better understanding of the actual expected maximum and minimum levels of generation/consumption from their units, therefore we are placing the onus on provider as to how they calculate this. We will use these limits to dictate how the assets are built in our systems, therefore providers will not be able to exceed these limits with their MEL/MIL data parameters. We propose reviewing this approach as we go and will be open to conversations with providers if they believe these limits aren't reflective of capability.

Are units open able to participate in other applicable markets that are dispatched via the BM?

For the time being units will only be able to compete in the BM price stack to receive bid/offer instructions. We will be reviewing this as we go and see units enter the BM. The applicability of metering standards across our suite of products will be also assessed during the external independent review.

Will this initiative determine the arrangements for all flexibility assets operating in the BM or other ESO markets?

This initiative, along with the operational metering standards review, will support the work of other ESO and industry initiatives (e.g. Flexibility Market Strategy, DER Visibility, Open Network projects) to set enduring and appropriate arrangements for metering to facilitate a level playing field and barrier free markets for competition between all types of flexibility.