Public

Briefing Note:

BM Operational Metering Changes

October 2025

Executive Summary

As a result of an independent review into the Balancing Mechanism (BM) Operational Metering requirements for <1MW aggregated assets, we will be relaxing accuracy, refresh rate and latency requirements in early 2026 to make the BM more accessible to small scale aggregated assets such as EVs. In parallel we will also be launching new workstreams that aim to further alleviate metering related blockers over the coming months and years.

We are also committed to continuing the operational metering derogation which allows up to 300MWs of aggregated assets to permanently participate in the BM using operational metering requirements that are more relaxed than those being introduced in early 2026. The purpose of the derogation is to ensure that any assets unable to meet the new requirements can still access the BM.

These reforms are a critical step in ensuring our systems and frameworks evolve in line with the rapid electrification of households and the growing role of small-scale flexibility. As technologies like EVs, heat pumps, and smart appliances become more widespread, the volume and complexity of distributed energy resources connected to the grid will increase significantly. To maintain a secure and efficient electricity system, it's essential that we can integrate and actively manage these assets at scale. By enabling broader access to the Balancing Mechanism, we are laying the groundwork for a more dynamic, responsive, and decarbonised energy system, one that reflects the changing nature of demand and empowers consumers to play a more active role in system balancing.

Background

In March 2022 at the Electricity System Operator (ESO) Markets' Forum, we made a commitment to make our markets more accessible to small scale flexibility, through a revised approach to operational metering requirements and to open the Balancing Mechanism (BM) to Consumer Energy Resources (CERs).

Assets connected at 415V and below are considered CERs:

- Asset size <1MW
- Connection point - 415 V and below (no specific connection agreement in place for the asset)
- Connection process - G98 or G99 Type - Category A

The primary purpose of the asset is to provide a consumer with a service or resource such as heating or charging (e.g. heat pump or electric vehicle).

Operational Metering Barriers Identified for CERs

The following BM operational metering requirements were identified as barriers for CERs looking to register for the BM:

1% Meter accuracy

Definition: Each sub-asset within an aggregated BMU must be individually metered at this accuracy.

Barrier: Most asset and boundary meters are not manufactured with an accuracy of 1% and can vary by up to 10%, meaning providers are unable to meet the requirement without retrofitting new metering systems. While the metering component cost to achieve ±1% accuracy is relatively small compared to the overall asset cost, redesigning and recertifying the assets would be expensive.

1 Second Refresh Rate

Definition: Each sub-asset within an aggregated BMU must take a new meter reading and send it to the aggregator's platform each second.

Barrier: Data transfer and storage costs associated with sending a reading from each sub-asset to the aggregator's platform every second is uneconomical given the relatively low revenue from each sub-asset and the significant number of them in each BMU.

5 Second Latency

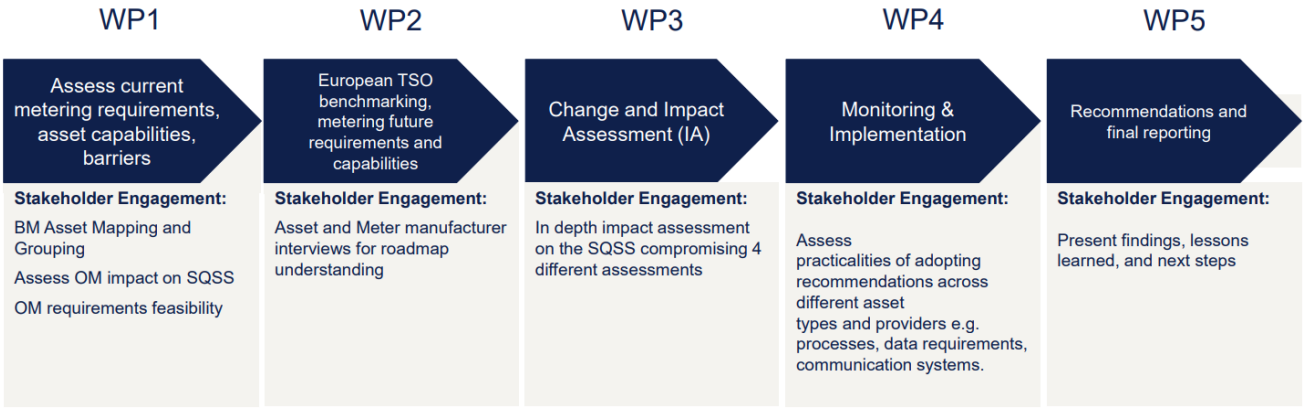
Definition: Each meter reading at the sub-asset must reach NESO's platform within 5 seconds.

Barrier: Some CERs are unable to meet the latency requirement due to multiple third-party intermediaries in the metering chain, each of which introducing a processing delay. There are also limitations with communication networks, protocols and infrastructure, all of which would be costly to resolve.

Independent Review of Operational Metering Requirements

Looking to address these barriers, in May 2024, we instructed consultancy DNV to conduct an independent review into the impacts of relaxing BM operational metering standards for <1MW aggregated assets.

The review consisted of five key work packages with the ultimate goal of providing us with a recommendation for future metering standards that considered both the capabilities of CERs and the system security and operability needs of NESO.



300MW BM Operational Metering Derogation

In conjunction with the independent review, we launched an enduring derogation on operational metering requirements for <1MW aggregated assets in February 2024. The purpose of the derogation is to allow aggregators to develop their offerings to customers and for us to better understand the characteristics of CERs when providing flexibility in the BM.

This derogation allows up to 300MW of aggregated assets to enter the BM under the following conditions for an unlimited period of time:

- Each provider can register up to 50MW of flexible volume into the BM (to ensure no single provider can use all 300MW).
- Sub-assets must provide a meter reading every 60 seconds to the aggregator's platform (previously 1 second).
- Sub-asset meters must have an accuracy of 2.5% (previously 1%).
- The aggregate meter feed must provide a new reading to NESO every second (no change).

The full derogation guidance document can be found here.

Independent Review Recommendations

The independent review concluded in September 2025 with DNV recommending that we take a two phased approach to address the barriers associated with operational metering for CERs.

We are committed to implementing the recommendations below.

Phase 1

Delivery in early 2026.

BM operational metering requirements for aggregated <1MW assets will be changed to the following:

1. **Accuracy Requirement Changes:**
    - Sub-asset Level: No extra requirement, as per applicable British Regulation *(previously 1%).*

- Portfolio Level: 1% (calculation of improved portfolio accuracy through law of large numbers permitted).

2. **Meter Read Frequency Requirement Changes:**
   - Sub-asset Level: every 30 seconds *(previously every 1 second).*
   - Portfolio Level: every 1 second *(no change)*
3. **Latency Requirement Changes:**
   - Latency: 5 seconds end to end latency from the sub-asset to NESO's platform *(no change)*
   - Latency "compensation formula" allowed in the short term for assets that cannot meet 5 second requirement. *(new)*
     - For example, an overall 10 second latency may require a meter read interval of 20 seconds, whereas an overall latency of 15 seconds, may require a meter read interval of 10 seconds. Overall latency greater than 20 seconds may require a meter read interval of 1 second.
   - NESO will work with industry to develop a methodology to measure the latency of aggregated assets by comparing timestamps for asset data communication and data receipt by NESO systems.

The operational metering requirements are currently stipulated within a provider's BM Bilateral Agreement.

- New providers registering for the BM for the first time will be issued with the latest version of the agreement template which will reflect the changes above once they go live in early 2026.
- Existing BM providers looking to utilise the new operational metering requirements will be issued with an Agreement to Vary which will modify their existing Bilateral Agreement to include the changes. Existing providers can reach out to their Account Manager or contact commercial.operation@neso.energy to request an Agreement to Vary once the changes go live.

For assets still unable to meet the new requirements, the 300MW derogation remains open with a read frequency requirement of 60 seconds at the sub-asset level.

4. **Apply learnings to Ancillary Services:**

Concurrently, efforts will be made to promote improvements in the quality of operational metering data e.g. by linking access to other NESO products to portfolio metering capability.

Phase 2

Delivery between 2026-2028

During the review it was demonstrated that errors from induced meter lag were likely to be predictable and could be mitigated. Phase 2 will evaluate and implement options to mitigate errors using an additional adjusted metering feed which anticipates the behaviour of CER

portfolios within the coming 30 seconds. This type of adjustment to meter feed data can be described as 'synthetic metering'.

The evaluation will explore how metering adjustments could be made by either NESO when receiving the aggregated meter feed, or by aggregators before sending the aggregate meter data to NESO.

This is likely a medium-long term solution because it is technology agnostic, presents no restrictions on market entry, CER performance, or Control Room resources, and limits impact on situational awareness to instances where BMUs behave unexpectedly.

An innovation project will be launched to investigate the feasibility and relative performance of synthetic meter feeds being created by both NESO and aggregators.

In conjunction with the innovation project **NESO will collaborate with industry to define options for the use of report on change** metering and will look to encourage its use with compatible asset types.

Report on change is where a sub-asset will monitor its power output each second and start sending updated meter readings to NESO when a change in power output is detected. Reducing the sub-assets read frequency whilst it's inactive should reduce aggregators overall data transmission and storage costs.

Additional Recommendations

We will also look to address the following recommendations from DNV through a mixture of new and existing workstreams:

System Planning:

We will refine CER modelling assumptions with industry input and make reserve and response dimensioning required for CERs a regular activity to reflect annual CER growth and maintain Security and Quality of Supply Standards (SQSS) compliance.

Balancing Mechanism Rules:

We will engage new entrants on PN accuracy, BOA precision, review the 1 MW minimum bid size, and explore requirements for single-technology BM portfolios once scale allows for better forecasting.

Forecasting:

We will integrate flexible demand and embedded generation, including BMUs currently on iHost, into forecasting processes as part of system upgrades.

Grid Code Ramp Limits:

As CER penetration grows, we will assess whether ramp rate limits for CER portfolios are needed to manage frequency risks, considering carefully any potential impacts on provision of flexibility by CERs.

Market and Settlement Rules:

We will work with Elexon, ENA, and the Flexibility Market Asset Register (FMAR) to standardise flexibility products, harmonise baselining, and align data requirements. With the aim to harmonise metering standards, ensure visibility of rebound effects, and support more granular DNO forecasting to improve market efficiency and system reliability.

Operational Metering:

We will consider a move from receiving aggregate meter feeds representing GSP Group-level to GSP-level and consider line loss correction factors. In this scenario, providers would still register GSP-Group level BMU's but would provide separate aggregate meter feeds for sub-assets located in each GSP to support with constraint management.

Testing and Compliance:

We will implement robust testing and compliance processes which align with those for large generators but take account of the unique characteristics of CER portfolios.

Contact us

For more information on the Operational Metering Review please visit the Power Responsive webpage.

Please direct any queries to: power.responsive@neso.energy