

Invite to Trial

Smaller scale aggregated assets entering the BM

20/06/2023

Executive Summary

Power Responsive is pleased to be able to invite you to enter our trial for small scale assets to enter our Balancing Mechanism (BM) with a period of relaxed operational metering standards, as well as appropriate restrictions we wish to put in place. We have substantive feedback from market participants that the current framework is a barrier to entry, leading to additional flexibility from smaller-scale assets being unavailable. The Power Responsive working group has made significant progress on the operational metering workstream; however, the timescales associated with the work being completed give us the opportunity to run this live trial in parallel with the on-going workstream. With that in mind we are proposing this trial period of relaxed operational metering standards for <100kW assets to capture all domestic and some small B2B flexibility, and plan that it will run concurrently during which the outputs of the Power Responsive working group will be completed. The outcome from the working group is quantification of the accuracy associated to an aggregated metering feed from smaller-scale assets.

Committing to a trial period where these standards have been relaxed, provides an opportunity to take a learn-by-doing approach to build an understanding of the impacts in a controlled environment ahead of any proposed enduring arrangements, while facilitating the potential value for this rapidly growing energy resource. Risks which would be introduced from this approach across processes, systems and people would be mitigated through restrictions on the total MW volume during this trial.

Context

In March 2022 at the Electricity System Operator (ESO) Markets’ Forum, we committed to making our markets more accessible to domestic flexibility through a revised approach to operational metering and to open the BM to small scale aggregated assets. Through this approach we stated that this will help ESO develop new standards based on the experiences and allow providers to build and evolve their consumer propositions. Since then, the ESO has run a trial exploring the barriers for entry of domestic Electric Vehicle charge points entering the BM ([Powerloop](#)) and a [Power Responsive working group](#) has also been established to agree a revised approach for operational metering across ESO teams and industry stakeholders.

Ensuring metering from all assets looking to enter the BM is reliable and accurate is vital to ensure we operate the grid to license conditions. Margins of error from metering can create poor situational awareness for Electricity National Control Centre (ENCC) engineers, leading to inconsistent dispatching. It also leads to demand forecasting errors which results in more actions needing to be taken in the control room to manage the uncertainty, increasing balancing costs for all. The Power Responsive working group has set up two case studies, looking to quantify the error associated to aggregated meter readings when working with smaller-scale assets that, due to prohibitive costs, are unable to meet the current BM operational metering standards. The learnings from the working group are expected over the next few months, which will be used to facilitate ongoing conversations across the ESO around the next steps for proportionately applying metering standards to smaller-scale aggregated assets, therefore facilitating their entry into the BM. The trial should run in conjunction with the case studies and collectively aims to support us in the direction we take.

Current Balancing Mechanism Asset Metering Requirements

	Requirement Level	Accuracy	Read Frequency	Latency	Resolution
Existing Standards (required at asset level)	Standards to be met at individual asset level within the BMU	+/- 1.0%	Once per second	<5 seconds	3 d.p.

Sub-asset vs Aggregate Operational Metering Standards

Sub-Asset Operational Metering Standards: The current standards state that all sub-assets within a BMU should be fitted with a meter that is able to meet the existing standards. This ensures that the aggregated metering feed that the ENCC receives is accurate and reflects a true representation of the BMU’s activity in real time. The purpose of reviewing

this requirement is because most controllable flexible assets do not have meters fitted or have meters fitted that are of lower specification, and therefore could not meet the current standards.

Aggregate Operational Metering Standards: The working group supported the idea to allow greater flexibility around how the operational metering standards were met and that it should be the responsibility of the BM participant to provide the required data at an aggregate level to allow for varied approaches to retrieving it from each sub-asset.

Proposed Trial requirements

The trial proposes to relax the operational metering standards for smaller-scale aggregated assets, to facilitate their participation into the BM. The only variation from existing BM requirements that will be allowed during a trial are those that relate to meeting operational metering standards using a new methodology as opposed to the existing standards set out in a BM providers' Bilateral Contract Agreement (or equivalent agreement). All other obligations, regulations and requirements to enter the BM will still apply, with participants expected to operate in the live market. The trial period will be volume capped and time limited, to reduce impacts on system security, resourcing commitments and strain on existing control systems. The relaxed metering standards will target smaller-scale aggregated assets, with a volume cap on the size of sub-asset we would accept for the trial period.

Trial Parameters

- Interim standards** – We will consider amended operational metering standards for active power measurements, as detailed in table 1 below. Other typical operational metering feeds will be considered as part of the objectives of the trial.
- Time limited** - Live trials may last up to 3 months (From asset becoming active in the BM - agreed on a case-by-case basis).
- Volume limited** - A maximum volume cap of 50 MW that the revised standards will be applied, with a limit of 10 MW per provider. This will be on a first come first served basis.
- Participation** – The relaxed metering standards will only apply for sub-assets < 100 kW, within an aggregated asset.
- Registration** - Providers looking to utilise these interim standards will need to register assets in the Balancing Mechanism or add additional sub-assets to an already existing aggregated unit. Therefore, all BMU's (existing or new) must adhere to all BM requirements (outside of metering requirements listed in table 1), rules, and regulations. This includes requirements on minimum volume thresholds and aggregation locality, and Elexon's settlement requirements as laid out in the BSC.
- Settlement** – The trial aims to have participants operating live in the BM, therefore all necessary settlement requirements need to be met and therefore registration processes need to be followed with Elexon.
- Post-trial period** - Once a trial is concluded, all assets that don't meet the existing (subject to results from the case studies) BM operational metering requirements, must be removed from the unit and cannot continue to operate in the BM.

Table 1 – Current operational metering standards as defined in appendix 5 of Bilateral Contract Agreements (or equivalent agreement) vs proposed for trial period, for sub-assets < 100kW within an aggregated group.

Aggregated signals	Required (Y/N)	Range	Scale (unit)	Accuracy (existing)	Accuracy (proposed)	Resolution	Refresh rate (existing)	Refresh rate (proposed)
Active Power	Yes	-10 MW to +10 MW	MW	1% of meter reading	+/-2.5% of meter reading – this is to align with Code of Practise 11 ¹ and Measurement Instrument Regulations accuracy tolerances	1 kW	1 per second	- 1 per second at aggregate level - 1 per 10 seconds at sub-asset

We are looking to validate that operational metering can be provided accurately and at an acceptable frequency by DSR and smaller-scale flexibility. This must ensure that ESO maintain high quality data for control room visibility and does not place an onerous data burden on aggregators and market participants to collect and process significant volumes of data without clear justification

We would like to invite industry to submit trial proposals to us for consideration. Any trials proposed should sit within the following parameters to ensure maximum learnings can be taken from the exercise both by the ESO and the proposer.

Trial Objectives

- Build evidence and understanding around the reliability and accuracy of operational metering feeds using either boundary point metering or asset metering, complimenting work being done in the case studies mentioned

¹ <https://www.elexon.co.uk/article/new-bsc-code-of-practice-cop11-sets-standards-for-accuracy-of-asset-metering-systems/#:~:text=CoP11%20outlines%20the%20minimum%20accuracy,behind%20the%20site%20Boundary%20Point>'.

previously. Explore methodologies to create data points highlighted in table 1, assess other operational metering signals typically required (e.g. Energy available, State of Charge) to create a clear understanding of why the data items are required and how they will be utilised in balancing activities.

- b. Improve understanding of how flexible controllable domestic (and small I & C) can work within BM framework;
 - a. Accuracy of data submissions (PN, MEL/MILs, Ramp rates + more)
 - b. Reliability of assets when responding to instructions
 - c. Commercial viability of the assets working in the BM, both in terms of participating customers and in relation to lower balancing action costs
- c. Assess the benefits and impacts of aggregated domestic (or small B2B) assets in the BM, reviewing theses across our systems, processes & people. Identifying potential future barriers for domestic (and small I & C) flexibility that could limit participation in any enduring solution.

Proposal Submissions

Although all registrations to enter this trial will be expected to follow usual registration process, we request providers contact the power responsive team first to discuss their intentions to register assets. This is to ensure we are aware of the registration and can make the necessary arrangements in terms of bilateral agreements. We will also want to discuss how you will meet the requirements of the BM and in particular the revised operational metering standards, as well as beginning discussions around how we can collaboratively work towards achieving the trial objectives.

Please reach out to the team on powerresponsive@nationalgrideso.com for consideration.

