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Operational Metering Working Group 5

Date 11/07/2023

Agenda

13:00	*5 mins*	**Welcome & Introductions**
13:05	*30 mins*	**Case Studies Update**
13:35	*20 mins*	**BM Live Trial Overview**
13:55	*5 mins*	**Round Up**

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Case Studies

Power Responsive are carrying out two case studies to build evidence and understanding on the impacts of aggregated measurement accuracy and asynchronous meter polling.

Case study 1 (Mathematical modelling)

Forecasting the impacts of different measurement accuracies at an individual asset level on the accuracy of a single aggregated metering feed.

Objectives

- To understand how the nameplate accuracy of asset meters impacts overall accuracy when assets are aggregated into a master unit.
- Understand the impacts of population size and size of measurements on the above.

Case study 2

Measuring the impacts of read frequency at the asset level and aggregation methodology on the error of an aggregated metering feed.

Objectives

- Understanding the error of an aggregated metering feed when compared to a base case (1 second read frequency at the asset) when read frequencies at the asset level are altered.
- The impacts of altering aggregation methodology (e.g. refresh rate for loss of comms) on the error of a aggregated feed (maintaining a 1 second feed) when compared to a base case.

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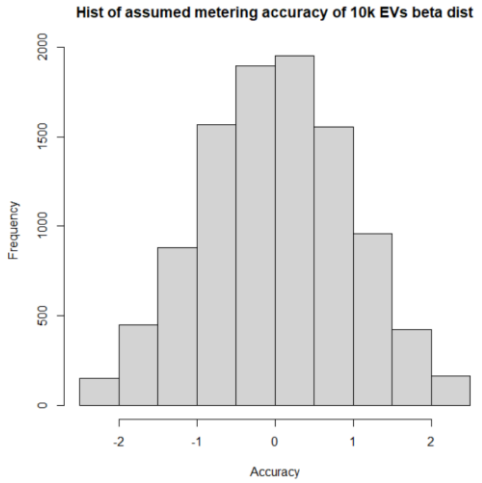
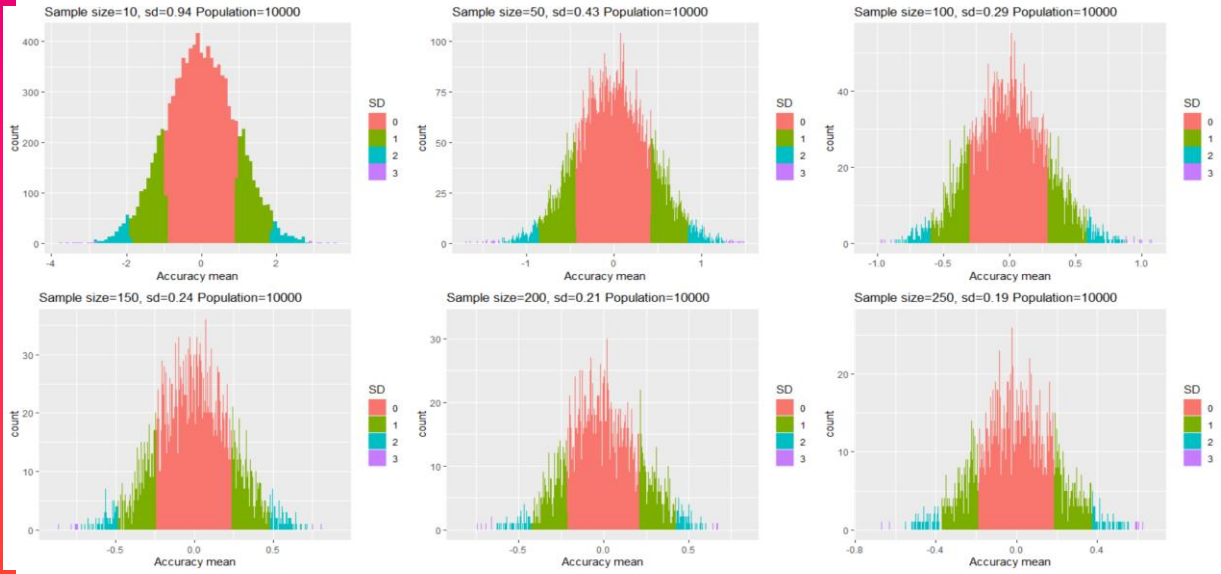
Case Study 1

Using statistical modelling to quantify the effect of measurement accuracy of an individual asset on the accuracy of a single aggregated metering feed.

Assumptions

- Accuracy of sub asset measurements away from true value is normally distributed (Although Central Limit Theory could apply if not)
- Mean accuracy is 0
- Dispersion of data (standard deviation) is dictated by the nameplate accuracy of meters
- No correlation between charge point measurement accuracy
- Population 10,000





Plotting the sample means we can determine at what sample size we can have a high confidence of the average (and therefore the overall aggregated) accuracy will fall between +/- 1 %.

Doesn't consider vary measurement size, impact of population size or measurements take over different time periods.

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Live BM Trial

Relaxing operational metering standards for a trial period, facilitating entry of smaller-scale aggregated assets into the BM.

Desired Learnings

- Improve understanding of how smaller-scale flexible assets can work within BM framework; data submissions, availability, reliability when called upon etc.
- Gain assurance and confidence in metering data feeds for aggregated assets utilising domestic assets.

Work with providers where applicable to see how we can collaborate to overcome internal implications highlighted below.

- Assess performance and stability of control systems when managing increased volumes of assets and data
- Increase understanding in system balancing benefits.
- Increase understanding of the commercial benefit for participating consumers.
- Highlight/Identify other barriers for domestic flex accessing the BM.
- Understand the current EV charge point volumes ready to access the BM.

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Trial objectives

Market framework

To identify how flexible controllable smaller-scale assets can operate in the BM

- Assess accuracy of data submissions (PN, MEL/MILs, Ramp rates etc.)
- Demonstrate reliability of assets when responding to instructions
- Evaluate commercial viability of assets operating in the BM, both in terms of participating customers and in relation to lowering balancing costs

Operational metering

Provide evidence to support PR in creating clear understanding of operational metering requirements for smaller-scale aggregated assets

- Establish the reliability and accuracy of operational metering feeds using either boundary point metering or asset metering.
- Understand capability of creating data points for other operational metering signals
- Provide evidence for new standards being developed through Power Responsive

Benefits & impacts

Assess the benefits and impacts of aggregated smaller-scale assets operating in the BM across systems, processes & people

- Highlight systems, processes & resourcing that need reviewing in order to maximise benefits from aggregated small scale assets operating in the BM
- Observe, review and quantify impacts of increased assets on system performance/stability

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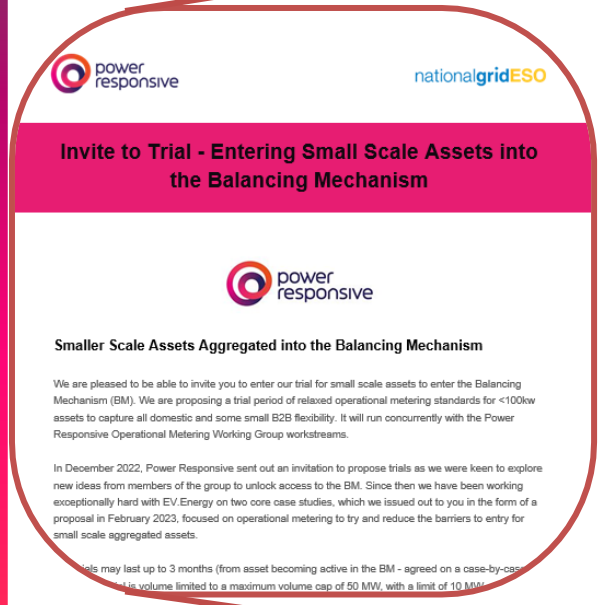
Live BM trial - Trial parameters



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Invite to Trial - Entering Small Scale Assets into the Balancing Mechanism

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Smaller Scale Assets Aggregated into the Balancing Mechanism

We are pleased to be able to invite you to enter our trial for small scale assets to enter the Balancing Mechanism (BM). We are proposing a trial period of relaxed operational metering standards for <100kw assets to capture all domestic and some small B2B flexibility. It will run concurrently with the Power Responsive Operational Metering Working Group workstreams.

In December 2022, Power Responsive sent out an invitation to propose trials as we were keen to explore new ideas from members of the group to unlock access to the BM. Since then we have been working exceptionally hard with EV.Energy on two core case studies, which we issued out to you in the form of a proposal in February 2023, focused on operational metering to try and reduce the barriers to entry for small scale aggregated assets.

...ials may last up to 3 months (from asset becoming active in the BM - agreed on a case-by-case ...is volume limited to a maximum volume cap of 50 MW, with a limit of 10 MW...

The trial parameters are as follows;

1. **Interim standards** – Relaxed operational metering standards for active power measurements
2. **Time limited** – 3 months (From asset becoming active in the BM - agreed on a case-by-case basis).
3. **Volume limited** - Total volume of 50 MW, with a limit of 10 MW per provider. This will be allocated on a first come first served basis.
4. **Participation** – Applies for sub-assets < 100 kW, within an aggregated asset of a minimum 1MW.
5. **Registration** - Providers must register a new aggregated asset in the Balancing Mechanism or add additional sub-assets to an already existing aggregated BM unit. All BM requirements (other than the metering requirements listed below) still apply.
6. **Settlement** – Prior to the trial, all BMUs (existing or new) must be registered with Elexon's settlement process.
7. **Post-trial period** - At the end of a trial, all assets that don't meet the existing BM operational metering requirements (subject to PR case studies) cannot continue to operate in the BM.

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

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Trial objectives