

Interim arrangements for Frequency Control Ancillary Services (FCAS) provision from Distributed Energy Resources DER – policy on classification of loads as ancillary service loads

Introduction

Purpose

This document has been prepared to expedite the participation of DER in FCAS markets in the National Electricity Market (NEM) in the short term. It sets out AEMO's approach to approving the classification of a load which has DER behind the connection point as an ancillary services load under the current National Electricity Rules (NER) and Market Ancillary Services Specifications (MASS). AEMO recognises that there may be scope to improve the MASS and the NER framework going forward.

AEMO will assess any application from a Market Customer or Market Ancillary Services Provider (MASP) to classify a load to provide ancillary services on a case-by-case basis in accordance with the NER.

Background

The consumer uptake of DER continues at a rapid rate, with the Clean Energy Regulator estimating that a record 2,200 MW of rooftop PV will be installed in 2019, higher than the previous record of 1,612 MW installed in 2018.¹ AEMO's Virtual Power Plant (VPP) Demonstrations are providing evidence to show how effective DER can be at providing contingency FCAS to support system security.²

As AEMO noted in the *Integrating Energy Storage Systems into the NEM Rule Change Proposal* (23 August 2019), traditionally the NER do not recognise significant bi-directional flows at connection points. The NER use the following terms to describe the electricity that is consumed from and produced to the grid at a connection point:

- 'Load' refers to the electricity consumed from the grid, but also to the asset.
- 'Generate', 'generation', 'generating' or 'sent out generation', refers to electricity produced or sent out to the grid.
- For network services, import and export of electricity concepts are used.

¹ Clean Energy Regulator. Available: <http://www.cleanenergyregulator.gov.au/RET/Pages/About%20the%20Renewable%20Energy%20Target/How%20the%20scheme%20works/Small-scale%20technology%20certificate%20market%20updates%20by%20month/Small-scale-technology-certificate-market-update---October-2019.aspx-certificate-market-update---October-2019.aspx>.

² AEMO. Available: <https://energylive.aemo.com.au/News/AEMO-VPP-trial-SA>.

Bi-directional flow is recognised to a limited extent under the NER, for example, for market network services, auxiliary supply associated with generation, and micro-embedded generation at the retail customer level.³

The Australian Energy Market Commission (AEMC) has acknowledged that there is a lack of clarity under the current NER and the MASS regarding whether MASPs could provide market ancillary services from loads with generating units which can export electrical power into a network⁴. By extension, the same issue arises for Market Customers.

AEMO's general approach has been to treat an application for approval to classify a load as an ancillary services load with respect to the import side of the connection point only. Where a Registered Participant wishes to provide ancillary services through export from the connection point, AEMO has required that the Registered Participant apply to classify the ancillary services generating unit to provide these FCAS services. As a result of this approach, only Market Generators have been eligible to provide ancillary services through export to the grid.

In July 2019, AEMO launched the VPP Demonstrations, in which AEMO is testing new approaches for VPPs to deliver FCAS both in terms of:

- Recognising the provision of ancillary services responses from both the export and import side of an ancillary services load connection point, and
- Testing new measurement and verification processes for VPPs.

A stated objective of the VPP Demonstrations has been to inform appropriate regulatory or operational changes that effectively integrate VPPs into the NEM.

Outside of the VPP Demonstrations, AEMO recognises that the approach to approving applications to classify loads as ancillary services loads has constrained the ability of DER to participate in FCAS markets. This is because generally DER participate in energy markets at load connection points as exempt generators, in accordance with the NER and the standing exemption which applies under the NEM Guide to Generator Exemptions and Classification of Generating Units.

Overview of Interim Arrangements for provision of frequency control ancillary services from ancillary services loads with DER

AEMO has considered the initial results of the VPP Demonstrations, stakeholder feedback, and the regulatory and technical requirements of the MASS and the NER in developing these Interim Arrangements for FCAS from DER.

These Interim Arrangements apply solely to AEMO's approach in considering and approving applications to classify a load as an ancillary service services load.

Under these Interim Arrangements, AEMO will recognise the provision of FCAS from export from a load connection point in its classification process. AEMO will consider this approach on a case-by-case basis, having regard to whether a Market Customer or MASP (as applicable) is technically capable of providing the relevant ancillary service response from the relevant load connection point, in accordance with the NER and the MASS.

³ Integrating Energy Storage Systems into the NEM Rule Change Proposal, 23 August 2019, p 5.

⁴ Frequency Control Frameworks Review, 26 July 2018.

Under AEMO's traditional approach, a Market Customer with a 2 MW battery at a connection point could apply to classify the load at that connection point as an ancillary services load capable of providing up to 2 MW of lower or raise response (from -2 to 0). However, to provide FCAS from export at the connection point, the Registered Participant would also need to register as a Generator (noting that Small Generation Aggregators are not eligible to provide FCAS).

Under these Interim Arrangements, the same Market Customer with a 2 MW battery at a connection point could apply to classify the load at that connection point as an ancillary services load capable of providing up to 2 MW (with a droop setting of 0.7%) of lower or raise response (from -2 to +2). Although this example involves a battery, these interim arrangements are technology neutral and also apply to distributed generation combined with controllable load at a connection point.

AEMO will continue to apply the NER to all applications to classify a load as an ancillary services load, and will assess each application on a case-by-case basis having regard to the NER and the MASS.

AEMO considers these Interim Arrangements afford consistency with the *Demand Response Mechanism and Ancillary Services Unbundling*⁵ rule change and the *Frequency Control Frameworks Review*⁶, which both recognised that small generating units including batteries could be used at a MASP connection point to provide market ancillary services.

Interim Arrangements to inform review of technical and regulatory framework applying to FCAS

While the arrangements detailed in this document reflect the existing NER and MASS, AEMO considers that there may be scope to improve and clarify the regulatory framework as it applies to ancillary services from DER.

The key learnings from the VPP Demonstrations will be derived from the data that participants share with AEMO. AEMO encourages VPPs that can meet the current measurement and verification process in the MASS, and therefore may not elect to join the VPP Demonstrations to deliver FCAS, to share data with AEMO to facilitate collective learning on how best to integrate VPPs at scale into the NEM. This would be voluntary data sharing, using the API infrastructure and Data Specification established for the VPP Demonstrations.⁷

AEMO intends to further reflect on the results of the VPP Demonstrations, other data shared with AEMO, and work with stakeholders, to review our experience under the current framework and assess whether there is scope for improvement, including through review of the MASS and consideration of a potential rule change proposal.

⁵ AEMC, Demand Response Mechanism and Ancillary Services Unbundling. Available: <https://www.aemc.gov.au/rule-changes/demand-response-mechanism>.

⁶ AEMC, Frequency Control Frameworks Review. Available: <https://www.aemc.gov.au/markets-reviews-advice/frequency-control-frameworks-review>.

⁷ AEMO. Available: <https://www.aemo.com.au/-/media/Files/Electricity/NEM/DER/2019/VPP-Demonstrations/VPP-Demonstrations-Data-Specification.pdf>.