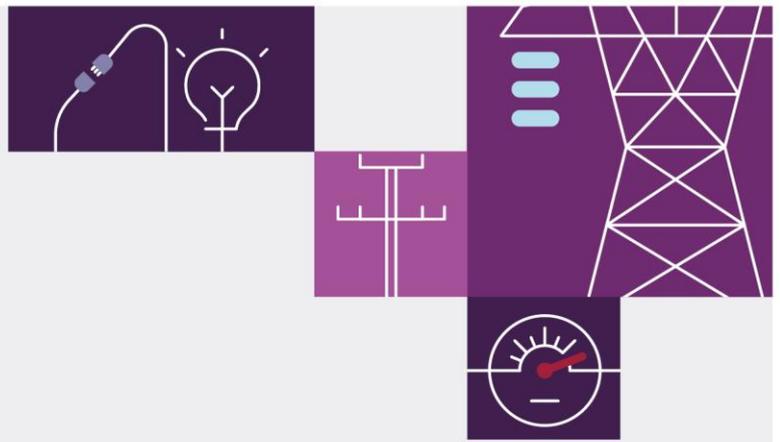


# IESS High-Level Design

May 2022

## Response to Stakeholder Feedback





# Important notice

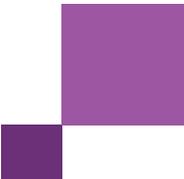
## Purpose

This document provides a summary of stakeholder feedback on AEMO's *Integrating Energy Storage Systems High Level Design*.

It has been prepared by AEMO using information available in April 2022. Information made available after this date may have been included in this publication where practical.

## Disclaimer

This document or the information in it may be subsequently updated or amended. This document does not constitute legal or business advice, and should not be relied on as a substitute for obtaining detailed advice about the National Electricity Law, the National Electricity Rules, or any other applicable laws, procedures or policies. AEMO has made every effort to ensure the quality of the information in this document but cannot guarantee its accuracy or completeness.



# 1 Introduction

AEMO's Integrating Energy Storage Systems (IESS) High-Level Design (HLD) document<sup>1</sup> was drafted to:

- Outline AEMO's system and operation changes
- Assist stakeholders in starting to scope their own IESS obligations
- Provide an opportunity for AEMO to receive industry feedback on the proposed high-level arrangements for implementing IESS.

The IESS HLD was published on 16<sup>th</sup> December 2022, and submissions were invited by 11<sup>th</sup> February 2022. A stakeholder workshop was also held on 4<sup>th</sup> February 2022. AEMO thanks stakeholders for their participation in the workshop and feedback on the HLD. AEMO has reviewed the issues raised, and Section 2 summarises and responds to these issues.

A revised version of the HLD will be published around June 2022 incorporating stakeholder feedback (where appropriate), updates and corrections.

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<sup>1</sup> The IESS HLD can be found at: <https://aemo.com.au/initiatives/submissions/integrating-energy-storage-systems-iess-into-the-nem>

## 2 Consultation Feedback

Table 1 summarises feedback on the IESS HLD. Descriptions in the 'Detail' column are not a verbatim reproduction of the stakeholder submissions, but instead are a summarised interpretation of the original comment. In some cases, similar comments from separate stakeholders have been addressed together.

**Table 1 Stakeholder feedback on the IESS High-Level Design.**

| #                                       | Issue   | Detail  | Response   |
|---|---|---|--|
| <b>Small Resource Connection Points</b> |   |   |  |
| 1                                       | Batteries in distribution network   | Some stakeholders expressed a desire to require distribution level batteries to consume energy during off-peak times and produce energy during on-peak times, prior to exporting from any co-located solar, with this helping to maximise return on investment.                                 | <a href="#">Energy Security Board</a> (ESB) initiatives such as <a href="#">Dynamic Operating Envelopes and Scheduled Lite</a> <sup>2</sup> are progressing arrangements under which distributed energy resources (DER) can be operated such that distribution level constraints are not adversely affected. AEMO considers such issues out-of-scope for IESS.   |
| 2                                       | Small Generation Aggregators (SGAs) without a Market Customer registration.                 | Will existing SGAs without an existing Market Customer registration be able to access frequency control ancillary services (FCAS) markets with their small generating units when this aspect of the rule becomes effective (31 <sup>st</sup> March 2023)?                                       | During the early implementation period (that is 31 <sup>st</sup> March 2023 to 3 <sup>rd</sup> June 2024), SGAs will be taken to be a Market Customer for the purposes of classifying a load as a market load (see clause 11.145.15(a)).<br>SGAs will not require an existing Market Customer registration to access FCAS markets with their small generating units (but they will have to classify their load appropriately to access FCAS markets).  |
| 3                                       | Prudential requirements for small generating units/small bidirectional units providing FCAS | What prudential requirements will apply for integrated resource providers (IRPs) that were formerly SGAs and will be able to bid into FCAS markets?   | Prudential settings are currently determined based on factors such as estimates of a Market Participant's generation and load, the regional reference price and reallocations. Outcomes in FCAS markets are not considered. This will persist under the IESS implementation.   |
| 4                                       | Customer churn impacts relating to FCAS   | Some stakeholders were concerned that customer churn processes for SGAs providing FCAS may not facilitate competition, as setup of the first IRP's metering and SCADA equipment installation at a customer site for FCAS could pose a technical and financial barrier to churning to a new IRP. | The customer switching framework relates to changing the financially responsible market participant (FRMP) role (responsible for energy flows in wholesale settlement) at a connection point but does not extend to switching of FCAS provider.<br>However, if an IRP is seeking to take over a small resource connection point, it will – at worst – have the option of installing its own SCADA equipment if intending to provide FCAS (but may be able to reach an agreement to use existing equipment). Arrangements for revenue metering are not required to be any different from standard FRMP switching. |
| <b>Registration</b>                     |   |   |  |
| 5                                       | Exemption framework for DC-coupled systems  | Stakeholders identified a need to update the <i>Generation Exemption and Registration Guide</i> to reflect IESS changes.  | AEMO confirms that the <i>Generation Exemption and Registration Guide</i> will be updated to reflect new registration arrangements being introduced under the IESS amending rule. AEMO is finalising its industry engagement approach and  |

<sup>2</sup> For more information see: <https://esb-post2025-market-design.aemc.gov.au/integration-of-distributed-energy-resources-der-and-flexible-demand>

| #                     | Issue  | Detail  | Response  |
|-----------------------|--|---|---|
|                       |  | Specifically, questions regarding definitions of nameplate rating and exemption criteria for DC-coupled systems were raised. For example, would a system with 4MW of DC-coupled battery capacity, 4MW of DC solar panel capacity, and a 4MVA inverter meet the exemption requirements?  | <p>will provide further information on timelines and scheduling of procedure changes (including this guide) in Q2 2022.</p> <p>AEMO is currently developing a framework for exemption and classification of DC-coupled systems and will engage with industry on this in the coming months.</p> <p>This framework will apply prior to the IESS effective date (3<sup>rd</sup> June 2024), to prepare for new connections from 3 June 2024.</p> <p>In relation to Generator exemptions, AEMO's <i>Generation Exemption and Registration Guide</i> (effective 21 April 2022) now clarifies how to determine nameplate ratings for DC-coupled generating units.</p> |
| 6                     | Transition to IRP and BDUs - process and connection agreements | <p>Stakeholders identified that they understand that existing participants with non-exempt bidirectional resources will need to re-register as an IRP and requested that AEMO aim to minimise the administrative burden on participants from this process by making it as simple as possible for businesses.</p> <p>They asked AEMO to confirm that this process will not involve participants needing to renegotiate generator performance standards (GPS) or re-open existing agreements such as connection agreements with networks.</p> | <p>AEMO confirms that:</p> <ul style="list-style-type: none"> <li>Participants with non-exempt bidirectional resources will need to re-register as an IRP. AEMO will support the process for participant registrations through an industry readiness program</li> <li>There will not be a requirement to re-negotiate existing performance standards or connection agreements during this process.</li> </ul> <p>Refer to clause 11.145.2(g) of the amending rule, and Section 2 of the <a href="#">IESS High-Level Design</a> for further details.</p>   |
| 7                     | Classification for pumped hydro units                          | Stakeholders requested confirmation that pumped hydro units will retain existing classifications as load and generation and the only impact would be to re-register as an IRP? They also queried the process to satisfy AEMO that a unit is not capable of linear transition.   | <p>AEMO confirms that units which cannot linearly transition from a state of charge to discharge due to a dead-band (typically pumped hydro) will continue to be classified as both a scheduled load and scheduled generating unit - but the participant would need to re-register as an IRP. For such cases, AEMO will require some supporting technical documentation (e.g. evidence that turbines and pumps share the same driveshaft and cannot seamlessly transition).</p> <p>AEMO will facilitate a streamlined transition process and support re-registration requirements as part of the IESS readiness effort.</p>                                     |
| <b>Hybrid Systems</b> |  |   |   |
| 8                     | Hybrids – constraint equations                                 | Regarding hybrid systems, participants sought to understand whether constraints would be implied based on the net impact on the grid at point of connection not on the individual demand and supply of the assets behind the point of connection.   | AEMO will apply constraint equations to the net-flow from a hybrid system where this reflects the nature of the constraint. Importantly, some constraints are unit specific i.e. they arise due to technical attributes of specific resources in a hybrid system. Such constraints cannot be resolved by balancing aggregate consumption and production behind the connection point, but rather must be applied to the specific resources. See clause 4.9.2A of the amending rule for more information.   |
| <b>Consultation</b>   |  |   |   |
| 9                     | Consultation approach  | Stakeholders queried whether it be possible for AEMO to publish a consultation timetable for this change. Having a clear timetable on when these consultations would occur  | AEMO is finalising its industry engagement approach and will provide further information on timelines and scheduling of IESS project activities (including procedure and system changes) in Q2 2022. The IESS engagement approach   |

| #         | Issue                      | Detail  | Response   |
|-----------|----------------------------|---|--|
|           |                            | would help participants plan the implementation process better as changes to the procedures will assist in understanding the scope of the changes required. | will also consider interactions with other concurrent and dependent industry changes such as the NEM 2025 program of work and AEMC rule changes.   |
| <b>10</b> | High level design document | A number of participants requested that additional examples of IRP registrations are documented and included in the high-level design document.             | AEMO will include additional Small Resource Aggregator and Hybrid System examples in the next version of the high-level design document, including systems with scheduled load instead of scheduled bidirectional units. |