



19 November 2021

Ms Anna Collyer  
Chair  
Australian Energy Market Commission  
PO Box A2229  
Sydney South NSW 1235

By email (AEMC ERC0280)

Dear Ms Collyer

### **Integrating Energy Storage Systems into the NEM – Supplementary Information**

This letter outlines advice to the Commission on the proposed delivery approach and timing for the implementation of the Integrating Energy Storage Systems (IESS) rule change.

AEMO has prepared high-level planning analysis for the implementation of the IESS project (refer to Attachment A) and considered this against the portfolio of concurrent reforms. The analysis shows that a staged approach to IESS delivery both de-risks and enables other project dependencies (both inflight and other in-progress projects) to be managed appropriately. As such, we propose the following implementation dates for the IESS project:

- March 2023: delivery of a 'baseline' release containing new registration and dispatch models. This release will give effect to any transitional rules.
- May 2024: delivery of a 'final' release containing the full implementation of the IESS rule change. AEMO estimates that 30 months is required for full implementation, including a market trial for a period of four months prior to go-live.

The Draft Determination published by the Commission required implementation within 18 months. In our submission to the AEMC Draft Determination, it was noted that the increased scope of the rule change, and the scale of concurrent change in AEMO's processes and systems, means that AEMO will be unable to commence implementation of this rule change for several months after the Final Determination, and 18 months is insufficient to implement all the changes set out in the Draft Determination. The submission noted that we expected the implementation of the reforms would require at least two years (when we think about the portfolio view) and asked that consideration be given to a flexible approach to the delivery of the rule change.

Our high-level planning analysis has shown that the implementation of the rule change requires amendments to a large portion of market systems, business processes and procedures, including:

- Registration: implementation of the Integrated Resource Provider (IRP) category and integration with downstream systems.
- Dispatch and System Operations: facilitate single DUID and hybrid generating systems.

- Settlements and Retail: changes to settlement calculations, metering, and retail systems as well as integration of reforms into settlement and prudential processes and systems.

The implementation of the IESS rule change is estimated to cost between \$20m to \$30m.

A key determinant of AEMO's implementation timeline are the dependencies for the current in-flight projects in the retail and metering market systems. AEMO is not able to commence work on the metering solution until after the Global Settlements rule change go-live in May 2022. The Metering solution is an important input to the Settlements solution due to the growing complexity of metering configurations in the NEM. In turn, integration of the reforms into the Settlements system is required to give effect to the rule change.

In addition, the ESB Post 2025 Final Report also noted that AEMO would work with industry to develop a NEM 2025 Implementation Roadmap (Roadmap) that appropriately sequences and seeks to reduce overall implementation costs. AEMO notes the implementation timeline for IESS may be influenced by the Roadmap.

Should you have any questions on the matters in our advice please contact Kevin Ly, Group Manager Regulation at [kevin.ly@aemo.com.au](mailto:kevin.ly@aemo.com.au).

Yours sincerely



Violette Mouchaileh  
Executive General Manager, Reform Delivery

Attachment: IESS implementation Timeline

ATTACHMENT A: IESS IMPLEMENTATION TIMELINE

1. Scope of IESS rule change project

1.1. Market system and process changes

Table 1 outlines the significant number of changes (or new functionality) to market systems and processes that are required for the delivery of the IESS rule change.

*Table 1: Market system and process changes*

<b>Market function</b>	<b>System and process changes</b>
<b>Registration</b>	<ul style="list-style-type: none"> <li>Introduction of new IRP category</li> <li>Registration process, technical documentation, registration forms and applications for energy storage systems</li> <li>Transfer / adjustment of existing categories</li> <li>Portfolio Management System</li> </ul>
<b>Forecasting and Planning</b>	<ul style="list-style-type: none"> <li>Generation information, DSPI portals</li> <li>Database changes</li> </ul>
<b>Dispatch and Operations</b>	<ul style="list-style-type: none"> <li>Bidding validation, bidding interfaces</li> <li>Dispatch engine interfaces</li> <li>Control room tools</li> <li>EMS set up and calculations</li> <li>NEM reports.</li> <li>Constraint tools</li> <li>Telemetry, Automatic Generation Control (AGC), SCADA changes</li> <li>Marginal Loss factors application</li> <li>Causer pays</li> <li>RERT, SRAS recovery</li> <li>ST PASA, MT PASA</li> </ul>
<b>Settlements and Prudentials</b>	<ul style="list-style-type: none"> <li>Energy, ancillary service, market fee settlement</li> <li>Non-energy settlement recoveries</li> <li>Settlement's estimation</li> <li>Settlement's shortfall and surplus</li> <li>Settlement's residue auction</li> <li>Embedded networks settlement</li> <li>Transition support for SGAs</li> <li>Integration into MCL, dashboard</li> </ul>
<b>Metering and Retail</b>	<ul style="list-style-type: none"> <li>MSATS, CATS.</li> <li>Profiling Allocation Engine</li> <li>Settlement inputs for embedded networks</li> <li>Loss Factors for Embedded Network connection points</li> <li>New NMI classification</li> </ul>

## 1.2. Regulatory changes

The following new procedures will be required as a result of the rule change:

- IRP registration and IRU classification - procedures, guides, fact sheets and application forms.
- Hybrid and DC-coupled unit classification procedures, guides and fact sheets.
- Single DUID bidding guide.
- Power system operating procedures for conformance of hybrid units.
- Transfer to IRP category and reclassification.

Existing regulatory documents that are expected to require material change or require a consultation as part of their amendment are shown in the table below.

*Table 2: new and existing procedures impacted*

<b>Market function</b>	<b>System and process changes</b>
<b>Registration and network connection</b>	Guide to generator exemption and classification of generating units Application forms, application and transfer guides, fact sheets and related registration documents relating to the Generator, Customer, Demand Response Service Provider, Small Generation Aggregator and Trader categories Power System Model Guidelines Generator Performance Standards Template
<b>Forecasting and Planning</b>	MT PASA Process Description ESOO & Reliability Forecast Guidelines ISP Methodology and database Power System Model Guidelines Generator Performance Standards Template
<b>Dispatch and Operations</b>	Schedule of Constraint Violation Penalty Factors SO_OP_3705 Dispatch Pre-Dispatch Process Description Factors Contributing to Differences between Dispatch and Pre-dispatch Outcomes Market Suspension Compensation Methodology SO_OP_3707 Procedures for issue of directions and clause 4.8.9 instructions SO_OP_3708 Non-market ancillary services Market Ancillary Service Specification Forward Looking Loss Factor Calculation Methodology Regulation FCAS Contribution Factor Procedure Intervention Pricing Methodology FCAS Model in NEMDE SO_OP_3717 Procedure for the exercise of the reliability and emergency reserve trader SO_OP_3710 Power system operating procedures - load forecasting ST PASA Process Description SO_OP_3718 Outage Assessment SO_OP_3719 Procedure for submitting recall information of scheduled generator outages Constraint Formulation Guidelines

<b>Market function</b>	<b>System and process changes</b>
<b>Settlements and Prudentials</b>	NEM Settlements Estimation Guide Settlements Guide to Ancillary Service Payments and Recovery NEM Direction Compensation Recovery Credit Limit Procedures NEM Direction Compensation Recovery PoLR Cost Procedures
<b>Metering and Retail</b>	Retail Electricity Market Procedures – Glossary and Framework Metrology Procedure: Part A National Electricity Market Metrology Procedure: Part B Metering Data Validation, Substitution and Estimation Exemption Procedure MSATS Procedures: CATS Procedure Principles and Obligations Operating Procedure MSATS CATS History Model Operating Procedure MSATS – NMI Discovery Questions and Answers DER Register Information Guidelines B2B Procedure Customer and Site Details Notification Process B2B Procedure Service Order Process B2B Guide

## 2. Concurrent projects

The existing pipeline of work for retail and metering systems is the key constraint driving the timing of the delivery of the IESS rule change. Concurrent retail and metering projects include:

- Global Settlements (GS).
- Metering coordinator planned interruptions (MCPI).
- MSATS Standing Data Review.
- Stand Alone Power Systems (SAPS).
- Consumer data right (CDR).

The regulatory implementation roadmap<sup>1</sup> outlines the forward implementation program of regulatory projects, an extract of the retail and metering projects is provided at Figure 1.

The concurrent change in AEMO's processes and systems means that the development of the metering solution cannot commence until May 2022 following the completion of the Global Settlements project. In turn, the settlements solution cannot commence until the metering solution has been completed. This drives the development and testing of the metering and settlement systems into the 'final' release with a delivery date in 2024.

<sup>1</sup> <https://aemo.com.au/en/initiatives/major-programs/regulatory-implementation-roadmap>

### 3. Project dependencies

AEMO has identified a large number of direct dependencies that need to be considered when planning the IESS implementation project, including:

- The ST PASA redevelopment project as well as other changes to the bidding and dispatch systems are co-requisites to the IESS project, and
- The registration model developed by the IESS project will be a co-requisite to Flexible Trading Arrangements (FTA), Scheduled Lite, Fast Frequency Response and other ESB initiatives.

AEMO will adopt a tranche delivery approach where a 'baseline' release (March 2023) will allow for dependent initiatives to build upon the functionality delivered in the IESS registration model.

The complex set of dependencies requires careful planning and well considered solution design to minimise the delivery risk associated with the implementation project.

### 4. Delivery timeline

A draft timeline for the delivery of the IESS project is included in Figure 2. The key phases of the delivery project include:

- Detailed planning and assessment phase: AEMO has commenced a detailed planning and analysis phase of work for the implementation of the rule change, this work will be completed in early 2022.
- Solution design and pilot for registration and dispatch systems by middle of 2022: Registration and dispatch experts are available and will soon commence work on the project. The Pilot will allow potential registration and dispatch solutions to be tested before starting project delivery execution. The pilot will also provide analysis to guide the prioritisation of deliverables.
- Baseline release for registration, dispatch and operational systems released in March 2023: The main components of the registration and dispatch functionality will be included in a baseline release at the end of March 2023, with integration to settlements and other market applications as part of the final release.

Transitional rules, including the provision of ancillary services by Small Generation Aggregators, will be delivered in the baseline release. The implementation of the necessary system and regulatory changes to support transitional rules will be considered further through the detailed planning phase of work.

- A final release consisting of retail and settlement systems, as well as full integration of all market systems: Project-wide activities will ramp-up in 2022 following the go-live of Global Settlements and once 5MS and WDR hyper care support activities finish.

Development of the metering solution is expected to commence in May 2022 following the completion of the Global Settlements project. The metering solution will be an input to the settlements solution with the development of these functional changes, as well as integration with other market systems, in the 'final' release.

- A market trial running from February to May 2024: AEMO has included a market trial in the scope of the delivery project to provide an opportunity for participants to test changes to registration, bidding and dispatch prior to the commencement of the rules. This is important given the size and complexity of these changes.

Figure 1: Regulatory Implementation Roadmap Extract

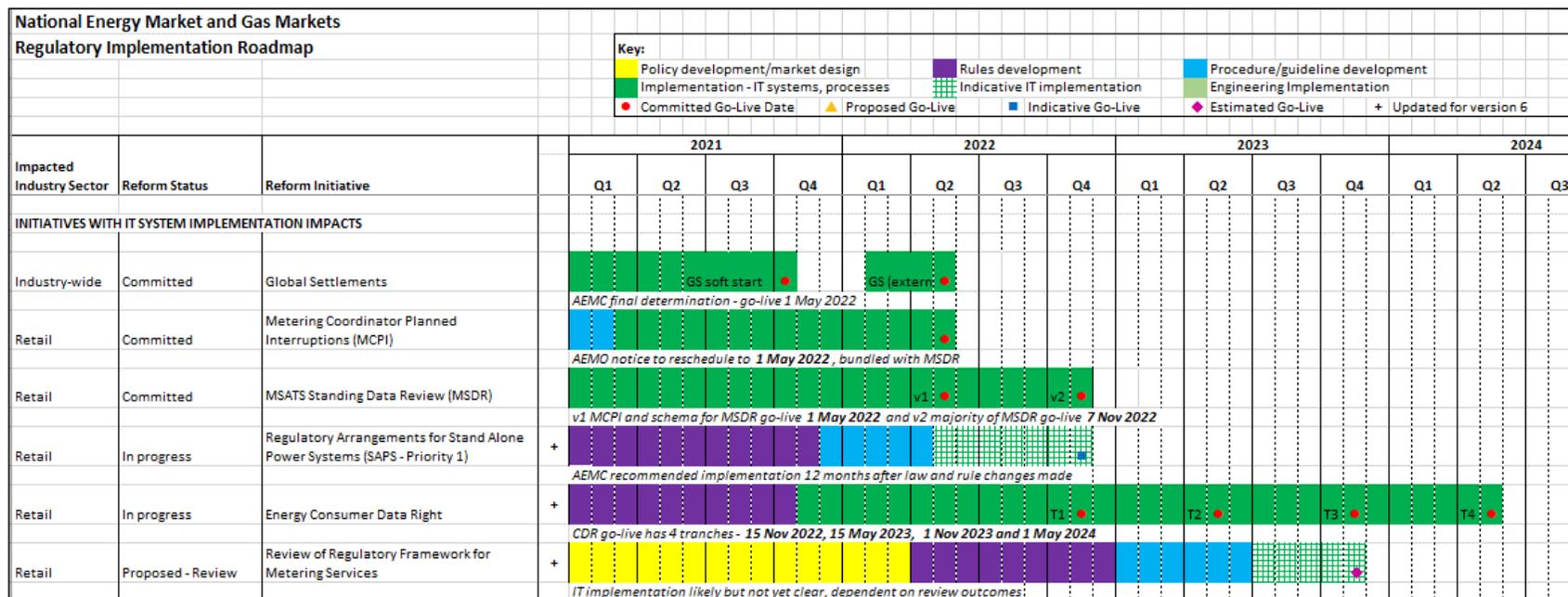


Figure 2: Draft Implementation Timeline

