

# NEM Reform Program

General Stakeholder briefing  
11 May 2023



# Disclaimer

This presentation includes material outlining AEMO's interpretation of indicative impacts of several national energy market (NEM) reforms to energy market systems and processes for energy industry participants, as at 11 May 2023.

The interpretations expressed in this presentation are not binding on AEMO. The interpretation of the impact of NEM reforms may change at any time.

Anyone participating or intending to participate in the NEM should obtain detailed advice about the application of the National Electricity Rules and applicable laws, procedures and policies to their specific circumstances.

To the maximum extent permitted by law, AEMO and its employees or consultants are not liable for any statements in, or omissions from, these materials, or for any use of or reliance on them.

# 1. Welcome

We acknowledge the Traditional Owners of country throughout Australia and recognise their continuing connection to land, waters and culture.

**We pay respect to their Elders past, present and emerging.**

# Introduction

This session

## General Stakeholder briefing

### Objectives

- An overview of AEMO's NEM Reform Program, its initiatives and impact to industry.
- To equip stakeholders with sufficient information to understand how these reforms may impact their business

### Scope

- In-Flight initiatives (implementation/execution focus).

## Roadmap briefing

### Objectives

- Provide an overview and facilitate clarification on the NEM Reform Implementation Roadmap.
- Walk through the incremental as well as material changes since the v.1 release in September 2022.

### Scope

- Holistic longer term NEM reform (planning focus).

- We look forward to your feedback and questions.
- Participants are asked to familiarise themselves with AEMO's Competition Law Meeting Protocol as outlined in Appendix A and at AEMO's website.



# Agenda

#	Time	Topic	Presenters from AEMO
1	2:00-2:05pm	<b>Welcome</b>	Peter Carruthers
2	2:05-2:15pm	<b>Context &amp; Program overview</b>	David Reynolds
3	2:15-2:45pm	<b>Initiatives and impacts to industry</b>	David Reynolds
		• Retail & BAU initiatives	David Reynolds
		• Fast Frequency Response • MT PASA • Frequency Performance Payments	Paul Johnson
		• Integrating Energy Storage Systems	Ulrika Lindholm
4	2:45-2:50pm	<b>Foundational &amp; Strategic initiatives</b>	Ulrika Lindholm
5	2:50-3:00pm	<b>Next steps &amp; how to get involved</b>	David Reynolds
6	3:00-3:10pm	<b>Q&amp;A</b>	David Reynolds
7	3:10pm	<b>Thanks and close</b>	Peter Carruthers

**Appendix A: AEMO Competition Law - Meeting Protocol**

**Appendix B: Reference information**

**Appendix C: Acronym Alphabet**

*"Please note that this meeting will be recorded by AEMO and may be accessed and used for the purposes of publishing it on the external NEM Reform Program webpage as a resource for industry participants. By attending the meeting, you consent to AEMO recording the meeting and using the recording for this purpose. No other recording of the meeting is permitted"*

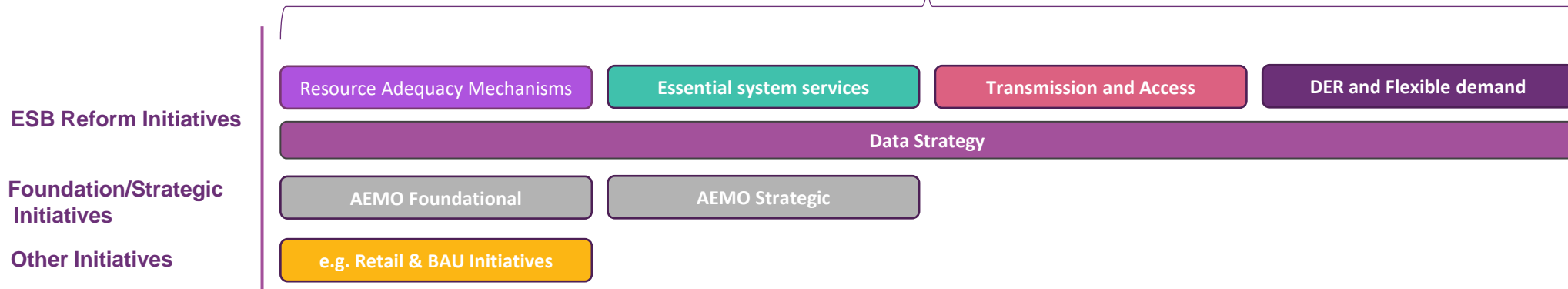
# 2. Context & Program overview

David Reynolds

# Program background and scope

- In July 2021, the Energy Security Board (ESB) released its final recommendations for the redesign of the National Electricity Market (NEM) as part of their Post 2025 Project. National Cabinet approved the Post-2025 reform recommendations on 29 October 2021.
- The ESB made recommendations in four key interrelated reform pathways that will fundamentally change many aspects of today’s electricity systems and markets. These key areas are complemented by a data strategy which recognises that digitalisation and data are critical to enabling each of the reform pathways.
- In addition to the reform initiatives AEMO has identified a subset of related foundation and strategic initiatives. These represent investments that will uplift the base capability upon which the reforms are dependent or identified opportunities where delivery efficiencies can be realised.
- The NEM reform program also comprises additional initiatives which have been the result of Australian Energy Market Commission (AEMC) rule changes or government directives.

NEM Reform Program Scope

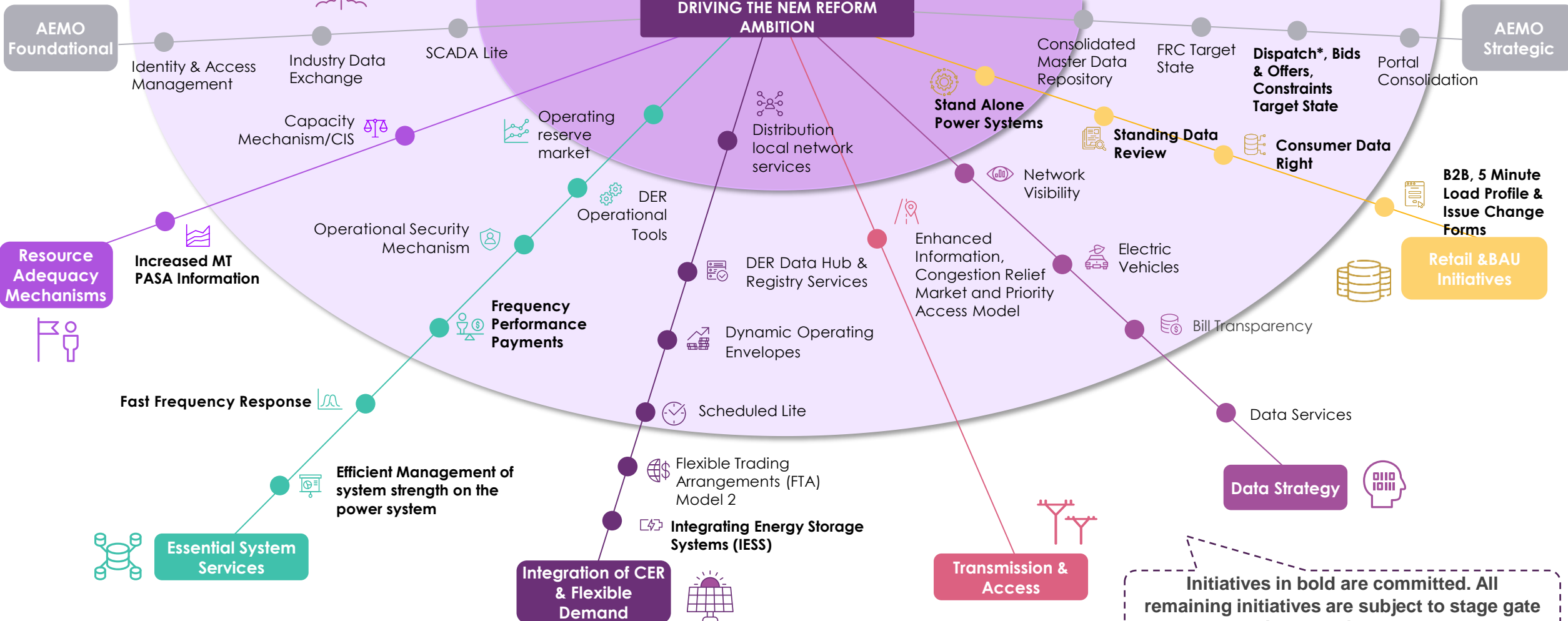




# Program Overview



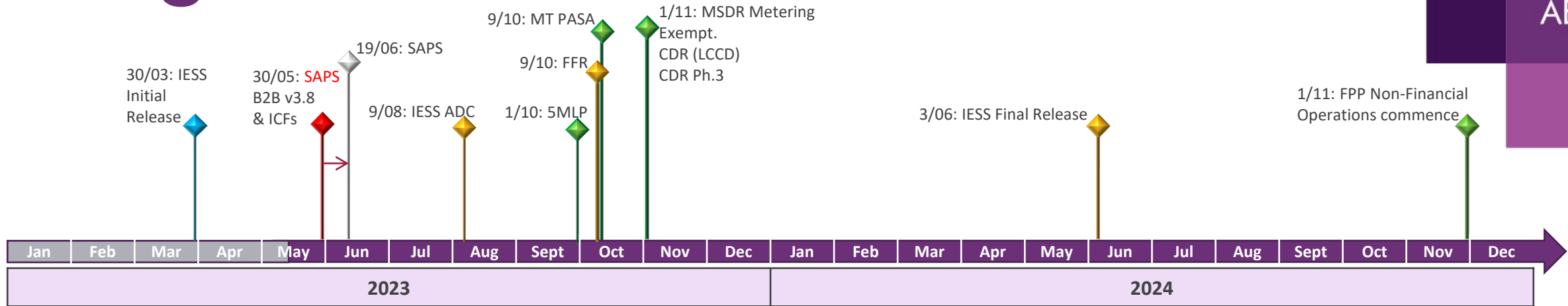
Successfully enabling the energy transition and net-zero emissions economy for Australians



\* Tactical uplift only.

Initiatives in bold are committed. All remaining initiatives are subject to stage gate and approval processes

# Program Timeline



-  On track
-  At Risk
-  Delayed
-  Delivered
-  New date

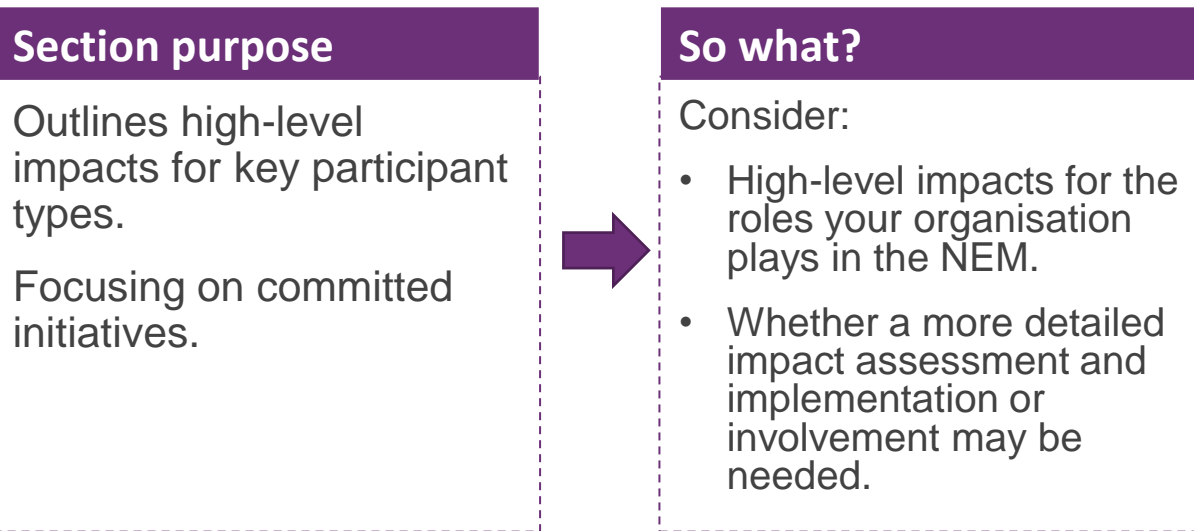
Release	Initiatives	Status	Key Points	Impacted Stakeholders
MAR-23	Integrating Energy Storage Systems [Initial]	Delivered	Deployment successful, awaiting MSGA registrations.	Market Small Generation Aggregators
	SAPS MSRP Registration	Delivered	Software deployed, MSRP registration accepted from 17 Apr.	LNSP, FRMP, MP/MDP
MAY-23	SAPS	<span style="background-color: red; color: white;"> </span>	Internal Testing late, Risk assessment decision made to delay SAPS go live to 19 Jun with contingency options for any 30 May SAPS NMIs.	LNSP, FRMP, MP/MDP
	CDR (excluding LCCD)	<span style="background-color: #90EE90;"> </span>	Complex API's have already been delivered to support major retailers release.	Major retailers
	B2B v3.8 and other ICFs	<span style="background-color: #90EE90;"> </span>	Remains on track for 30 May 2023.	LNSP, FRMP, MP/MDP
AUG-23	Integrating Energy Storage Systems [ADC]	<span style="background-color: #FFD700;"> </span>	Delay in commencing AEMO testing.	Aggregate Systems
	Fast Frequency Response - Dispatch & Reg	<span style="background-color: #FFD700;"> </span>	Delay in commencing AEMO testing.	Generators, Market Customers
OCT-23	Fast Frequency Response	<span style="background-color: #FFD700;"> </span>	Draft Service commencement plan was released 6 Apr. Delay in commencing AEMO testing.	Generators, Market Customers
	5 Minute load profile	<span style="background-color: #90EE90;"> </span>	1 Oct go-live date confirmed.	Market Customers / FRMP
	Increased MT PASA Information	<span style="background-color: #90EE90;"> </span>	Reliability forecasting guidelines have been finalised and published 24 Apr.	Scheduled Generators
NOV-23	Metering Exemptions (MSDR)	<span style="background-color: #90EE90;"> </span>	Consultation in progress to confirm 1 Nov as effective date.	MC and MP/MDP
	CDR (LCCD)	<span style="background-color: #90EE90;"> </span>	Stakeholder Responses supportive to confirm 1 Nov effective date.	FRMPs
JUN-24	Integrating Energy Storage Systems [Final]	<span style="background-color: #FFD700;"> </span>	Management action required to address looming delays in development and system testing.	IRPs, NSPs, FRMP, MP/MDP, Vendors
JUN-25	Frequency Performance Payments	<span style="background-color: #90EE90;"> </span>	PFRR report published on 4 May.	Generators, Market Customers

# 3. Initiatives and impacts to industry

David Reynolds

# About this section

## Impacts for industry participants



The information presented in this session is general in nature. AEMO encourages industry participants to undertake their own due diligence to assess energy market reform impacts on their respective organisations.

## What underpins this assessment?





# Retail and BAU Initiatives

David Reynolds



# Scope & key dates

TIMING	ELEMENT	SUMMARY
30 May 2023	Business to Business (B2B) v3.8, Business to Market (B2M) Issue Change Form (ICFs) Commencement	<ul style="list-style-type: none"> <li>B2B Procedures v3.8 commences                             <ul style="list-style-type: none"> <li>Defined method of manage de-energisation and re-energisation Service Orders when there are two service providers (DNSP and MC) who may have undertaken or will undertake the de-energisation, to better mitigate the risk of customers being left off supply; and</li> <li>New shared fuse notification transaction to support the Metering Coordinator Planned Interruption (MCPI) rule change</li> </ul> </li> <li>Implement four change proposals (ICFs) to drive efficiencies in retail electricity B2M processes.                             <ul style="list-style-type: none"> <li>House Number To Suffix is a part of the Australian structured address standards.</li> <li>Extend the current 130 business day limitation on NMID3 requests.</li> <li>Allow ENMs visibility to parent NMI standing data</li> <li>Updating Network Tariff for a Greenfield NMI.</li> </ul> </li> <li>B2M &amp; B2B r43 schema deploys</li> </ul>
19 June 2023	Stand Alone Power Systems (SAPS) go live	<ul style="list-style-type: none"> <li>National framework that facilitates the provision of SAPS by DNSPs to their existing customers go live commences:                             <ul style="list-style-type: none"> <li>SAPS MSRP registration material available 31 March 2023 with registration able to commence from 17 April</li> <li>SAPS Wholesale and retail software deployments planned</li> <li>SAPS TNI establishment, SAPS Generator NMI establishment, SAPS end use customer NMI transfers SAPS metering data and settlement processes commence</li> </ul> </li> </ul>
1 October 2023	Five Minute Load Profile (5MLP)	<ul style="list-style-type: none"> <li>Change to existing methodology to manage risks with a combination of positive and negative values that can produce very high or very low profiled values after applying the 5MLP to 30-minute and 15-minute metering data.                             <ul style="list-style-type: none"> <li>Change to methodology only, no industry deployment required to support 5MLP.</li> <li>AEMO development in progress with Enterprise Meter Data Management (eMDM) main component for changes.</li> <li>Industry Testing will require generation of Settlement runs and will be co-ordinated with Fast Frequency Response (FFR) activity.</li> </ul> </li> </ul>
1 November 2023	Metering Installation Exemptions Automation Commencement	<ul style="list-style-type: none"> <li>Automation of the metering installation exemption process for meter malfunctions and small customer metering installation commences.                             <ul style="list-style-type: none"> <li>Consultation underway on associated procedures and effective date</li> <li>Metering Installation Exemption Guideline available, provides guide on steps to perform and maintain automated metering exemption requests.</li> </ul> </li> </ul>
1 November 2023	Rule Commencement	<ul style="list-style-type: none"> <li>Consumer Data Right (CDR) Tranche 3 commences:                             <ul style="list-style-type: none"> <li>Tranche 3 integration with all retailers with &gt;10k customers excluding complex requests.</li> </ul> </li> </ul>
1 November 2023	Data Population Commencement	<ul style="list-style-type: none"> <li>CDR Market Settlement and Transfer Solution (MSATS) Last consumer change date (LCCD) field population obligations commence:                             <ul style="list-style-type: none"> <li>Effective date of AEMO LCCD population logic and all retailers proposed to populate LCCD from 1 November 2023.</li> <li>LCCD field deployed on 30 May 2023 r43 schema.</li> </ul> </li> </ul>

# Fast Frequency Response (FFR)

Paul Johnson



# Scope & key dates

TIMING	ELEMENT	SUMMARY
<b>09 Oct 2023</b>	Introduction of Fast Frequency Response (FFR)	<ul style="list-style-type: none"> <li>The Australian Energy Market Commission (AEMC) has made a <a href="#">final rule</a> to introduce two new services to help control frequency as the inertia of the power system reduces.</li> <li>The services will provide “very fast” contingency response, alongside the existing fast, slow and delayed services.</li> <li>The AEMC considers the introduction of these services will also foster innovation in faster responding technologies, which become more important to support the energy transition.</li> <li>The new very fast services will come into effect from 9 October 2023, at which time AEMO will implement a requirement for the services and Frequency Control Ancillary Service (FCAS) providers will be enabled through dispatch processes</li> </ul>
<b>07 Oct 2022</b>	MASS finalised	
<b>12 Apr 2023</b>	Electricity Market Management System (EMMS) Technical Specification (Draft) release	<ul style="list-style-type: none"> <li>Technical Specification provides details of changes required to bidding and dispatch interfaces required to provide offers for the very fast FCAS services</li> <li>EMMS Data Model 5.2, includes updates for the support of FFR is available in pre-production 20 Apr 2023, and production 23 May 2023. Changes supported include updates to settlement tables to incorporate new ancillary service</li> </ul>
<b>11 May 2023</b>	Service Commencement Plan	<ul style="list-style-type: none"> <li>Final version of Service Commencement Plan</li> <li>Service Commencement Plan:                             <ul style="list-style-type: none"> <li>Outlines the approach to facilitating registration of eligible FCAS providers prior to market start.</li> <li>Describes AEMO’s approach to determine the amount of each service required under different power system conditions to maintain security (consistent with the Frequency Operating Standard).</li> <li>Describes how AEMO intends to transition from current Contingency FCAS market arrangements to the new arrangements.</li> </ul> </li> </ul>
<b>9 August 2023</b>	Registrations Commence	<ul style="list-style-type: none"> <li>Registration of participants proposing to offer very fast FCAS service commence:                             <ul style="list-style-type: none"> <li>Supporting materials were published in April to assist potential providers in assessing their capability for Very Fast FCAS.</li> <li>AEMO will engage with existing Fast FCAS providers, prior to this date, who wish to provisionally confirm their Very Fast FCAS maximum capacity, prior to the formal registration application being submitted.</li> </ul> </li> </ul>
<b>9 Oct 2023</b>	Rule Commencement	<ul style="list-style-type: none"> <li>Bids for Very Fast FCAS Service effective from 9 Oct.</li> </ul>



# FFR: high-level impacts

The information presented here is general in nature. AEMO encourages industry participants to undertake their own due diligence to assess energy market reform impacts on their respective organisations.

AFFECTED MARKET SYSTEMS & PROCESSES	INDICATIVE PARTICIPANT CHANGE IMPACTS	AFFECTED PARTICIPANTS (TBC)												
		Generator	Sch. Load	SGA	IRP	FRMP (Market Cust)	TNSP	DNSP	MC	MDP	MP	ENM	MSRP	Vendors
<b>REGISTRATION</b>	<b>LOW</b> for those: <ul style="list-style-type: none"> <li>New contingency FCAS providers</li> <li>Existing contingency FCAS providers</li> </ul>	✓	✓	✓	✓									
<b>BIDDING &amp; DISPATCH</b>	<b>LOW</b> level of process impact, including: <ul style="list-style-type: none"> <li>Extending current bidding system to support Very Fast FCAS services</li> <li>New terms/info on constraint equations and dispatch outcomes</li> </ul>	✓	✓	✓	✓									
<b>RETAIL &amp; METERING</b>	<b>NONE</b>													
<b>SETTLEMENTS</b>	<b>LOW</b> with: <ul style="list-style-type: none"> <li>Extending to display new columns for invoicing reports</li> <li>'Ancillary services' line item on billing PDF to include new services</li> <li>Impacts to all participants that consume settlement data</li> </ul>	✓	✓	✓	✓	✓								

<b>Generator</b>	Generators
<b>Sch. Load</b>	Scheduled loads
<b>SGA</b>	Small generation aggregators
<b>IRP</b>	Integrated resource providers

<b>FRMP</b>	Financially responsible market participant
<b>TNSP</b>	Transmission network service provider
<b>DNSP</b>	Distribution network service provider
<b>MC</b>	Metering coordinator

<b>MDP</b>	Metering data provider
<b>MP</b>	Metering provider
<b>ENM</b>	Embedded network manager
<b>MSRP</b>	Market SAPS resource provider

# Medium Term Projected Assessment of System Adequacy (MT PASA)



Paul Johnson



# Scope & key dates

TIMING	ELEMENT	SUMMARY
<b>09 Oct 2023</b>	Increased Medium Term Projected Assessment of System Adequacy (MT PASA) Information	<p>The project has been established under the NEM 2025 Reform program to deliver the key changes (people, system, and process) arising from the National Electricity Amendment (Enhancing information on generator availability in MT PASA) Rule 2022 No. 7 (<a href="#">ERC0338</a>)</p> <p>This AEMO initiated rule change highlighted that the lack of detailed information on generator availability is becoming an issue. Rapid change to the NEM's generation fleet, as renewable energy generation enters the market, will drive changes to the operating regimes of aging thermal generation plants leading to several challenges including:</p> <ul style="list-style-type: none"><li>• Reduction in the number of units made available during certain periods of the day or year leading to a potential lack of reserve or essential system services,</li><li>• Lack of standardised information making it difficult for AEMO to effectively plan and operate the system,</li><li>• Increased complexity in assessment of compliance under the current notice of closure arrangements,</li><li>• Limitations on the ability of participants to coordinate maintenance schedules, and</li><li>• Weakened investment signals</li></ul> <p>The rule change seeks to address this problem by improving the understanding about why particular generators are unavailable and how long they would take to come back online. From 9 October 2023 scheduled generators are required to increase the MT PASA information currently supplied to AEMO (daily) to include:</p> <ul style="list-style-type: none"><li>• Unit state — that is, a scheduled generating unit's availability or unavailability and the reason for its availability or unavailability (referred to as unit state, reason, or reason code)</li><li>• Unit recall time — to indicate the period in which the plant could be made available under normal conditions after a period of unavailability. AEMO has determined which unit states will require a unit recall time to be submitted</li></ul>

# MT PASA: Indicative high-level impacts



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AFFECTED MARKET SYSTEMS & PROCESSES	INDICATIVE PARTICIPANT CHANGE IMPACTS	AFFECTED PARTICIPANTS (TBC)														
		Generator	Sch. Load	SGA	IRP	FRMP	TNSP	DNSP	MC	MDP	MP	ENM	MSRP	Vendors		
REGISTRATION																
BIDDING & DISPATCH	<p><b>LOW</b> for those:</p> <ul style="list-style-type: none"> <li>Scheduled generation unit and scheduled bi-directional units required to supply additional data fields.</li> <li><i>Optional</i> for TNSP and Scheduled Load participants.</li> </ul>	✓	✓				✓									
RETAIL & METERING																
SETTLEMENTS																

<b>Generator</b>	Generators
<b>Sch. Load</b>	Scheduled loads
<b>SGA</b>	Small generation aggregators
<b>IRP</b>	Integrated resource providers

<b>FRMP</b>	Financially responsible market participant
<b>TNSP</b>	Transmission network service provider
<b>DNSP</b>	Distribution network service provider
<b>MC</b>	Metering coordinator

<b>MDP</b>	Metering data provider
<b>MP</b>	Metering provider
<b>ENM</b>	Embedded network manager
<b>MSRP</b>	Market SAPS resource provider

# Frequency Performance Payments (FPP)

Paul Johnson



# Background

- AEMO has begun implementing the AEMC's final determination in the Primary Frequency Response (PFR) Incentives rule change, made in September 2022.
- The new rules create a system of positive and negative frequency performance payments (FPP), which will replace the current Causer Pays system in June 2025. Under the new regime, market participants will receive payments for eligible facilities where their PFR helps to reduce the frequency deviations which would otherwise require the use of regulation Frequency Control and Ancillary Services (FCAS).
- The first major elements of the new regime are an updated PFR requirements procedure, which AEMO published on 4 May, and a new Frequency Contribution Factors Procedure which AEMO will publish by 8 June. These procedures set out the parameters under which PFR are to be provided and how contribution factors for individual generators will be calculated.

# Scope & key dates

TIMING	ELEMENT	SUMMARY
<b>4 May 2023</b>	Primary Frequency Response Requirements (PFRR) Procedure	<ul style="list-style-type: none"> <li>Final procedure has been published, following consultation. Procedure covers matters including:                             <ul style="list-style-type: none"> <li>Requirement to provide Primary Frequency Response (PFR)</li> <li>PFR parameters and additional performance requirements</li> <li>Exemptions and variations.</li> <li>Demonstrations of stability and compliance</li> </ul> </li> </ul>
<b>By 8 Jun 2023</b>	Frequency Contribution Factor Procedure (FCFP)	<ul style="list-style-type: none"> <li>Procedure is currently being finalised, following consultations on a draft. The FCFP, which covers:                             <ul style="list-style-type: none"> <li>The calculation of a generating unit's impact on system frequency and the associated payment</li> <li>Metering requirements</li> <li>Determination of the need to raise or lower power system frequency</li> </ul> </li> </ul>
<b>Jul 2024</b>	Data model technical specification update - Reporting	<ul style="list-style-type: none"> <li>Updated participant data model, containing new Frequency Performance Payments (FPP) data reporting</li> </ul>
<b>Nov 2024</b>	Data model technical specification update - Settlements	<ul style="list-style-type: none"> <li>Updated participant data model, containing new elements for FPP settlements</li> </ul>
<b>Oct 2024 to Apr 2025</b>	Non-financial operation of new FPP systems	<ul style="list-style-type: none"> <li>Extended period of non-financial operation of the new FPP system to allow market participants to familiarise themselves with its operation</li> </ul>
<b>8 June 2025</b>	FPP Go live	<ul style="list-style-type: none"> <li>New FPP arrangements replace existing 'causer pays' arrangements.</li> </ul>

# FPP: Indicative high-level impacts

*The information presented here is general in nature. AEMO encourages industry participants to undertake their own due diligence to assess energy market reform impacts on their respective organisations.*

AFFECTED MARKET SYSTEMS & PROCESSES	INDICATIVE PARTICIPANT CHANGE IMPACTS	AFFECTED PARTICIPANTS (TBC)													
		Gener ator	Sch. Load	SGA	IRP	FRMP	TNSP	DNSP	MC	MDP	MP	ENM	MSRP	Vendors	
<b>REGISTRATION</b>	<b>LOW</b> for those: <ul style="list-style-type: none"> <li>Scheduled and semi-scheduled generators seeking an exemption from PFR requirements</li> </ul>	✓	✓		✓										
<b>BIDDING &amp; DISPATCH</b>	<b>LOW</b> for those: <ul style="list-style-type: none"> <li>Participating in central dispatch (as that process is unchanged), with potential consideration to changes in regulation FCAS offers</li> </ul>	✓	✓		✓										
<b>RETAIL &amp; METERING</b>	<b>LOW</b> for those: <ul style="list-style-type: none"> <li>Whose metering is compliant with current requirements, as there are no new specific metering requirements as part of the scheme</li> </ul>														
<b>SETTLEMENTS</b>	<b>MODERATE</b> for those: <ul style="list-style-type: none"> <li>Scheduled, semi-scheduled generators and other facilities individually assessed in FPP</li> <li>Market Participants who will be involved in recovery of FPP and regulation FCAS costs</li> </ul>	✓	✓	✓	✓	✓									

<b>Generator</b>	Generators
<b>Sch. Load</b>	Scheduled loads
<b>SGA</b>	Small generation aggregators
<b>IRP</b>	Integrated resource providers

<b>FRMP</b>	Financially responsible market participant
<b>TNSP</b>	Transmission network service provider
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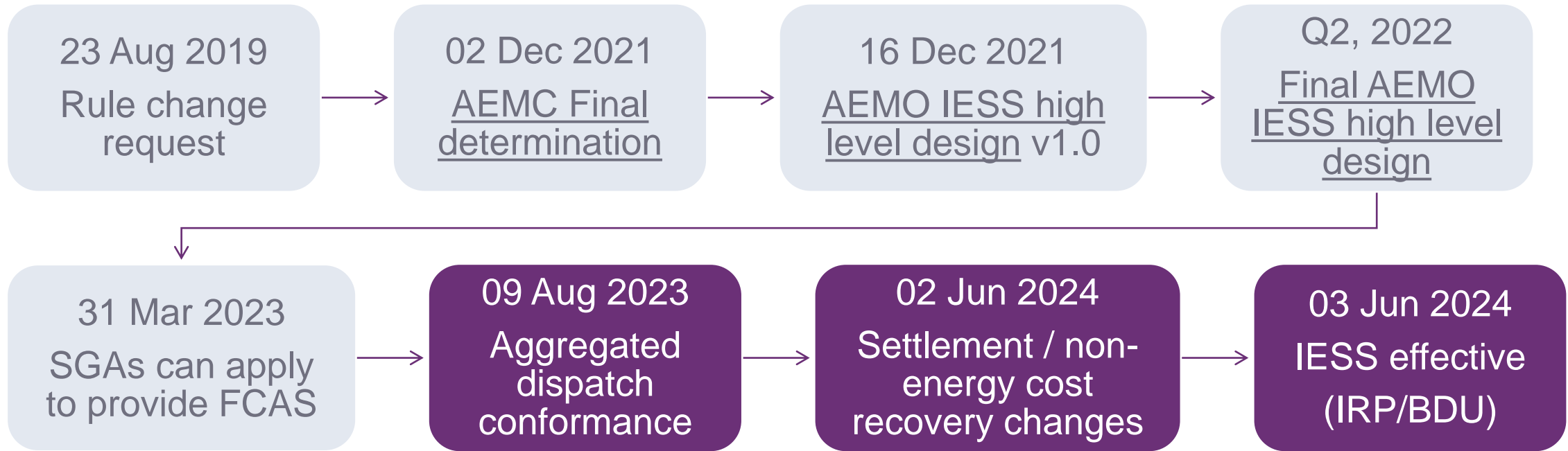


# Integrating Energy Storage Systems (IESS)

Ulrika Lindholm

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# IESS: high-level timeline



<b>SGA</b>	Small generation aggregator
<b>FCAS</b>	Frequency control ancillary service/s
<b>IRP</b>	Integrated resource provider
<b>BDU</b>	Bi-directional unit



- REFERENCES**
- [AEMC IESS rule change](#)
  - [AEMC Implementing IESS rule change](#)
  - [AEMO IESS High Level Design and Implementation Strawperson](#)
  - [AEMO IESS Participant Toolbox](#)

# IESS: initiative summary

TIMING	ELEMENT	SUMMARY
09 Aug 2023	Aggregated dispatch conformance (ADC) <i>Optional for participants</i>	<ul style="list-style-type: none"> <li>ADC allows an aggregate system the flexibility to conform to its dispatch instructions by dispatching energy at the connection point from any combination of its units (with some restrictions) rather than on a unit-by-unit basis.</li> </ul>
02 Jun 2024	Settlement and non-energy cost recovery (NECR) changes	<ul style="list-style-type: none"> <li>Fundamental change - move from current category-based approach to a directional approach:               <ul style="list-style-type: none"> <li>“Generator” and “customer” energy will become “sent out” and “consumed” energy, regardless of the type of connection point</li> </ul> </li> <li>Changes to the way NEM participants pay for “non-energy” services i.e. costs of ancillary services, interventions etc.</li> <li>Non-energy cost recovery will change to recovery from <b>cost recovery market participants</b> (CRMPs) based on their proportion of sent-out or consumed energy. CRMPs are:               <ul style="list-style-type: none"> <li>Market generators</li> <li>Integrated resource providers</li> <li>Market customers</li> </ul> </li> </ul>
	New/updated National Meter Identifier (NMI) Classification Codes	<ul style="list-style-type: none"> <li>Subject to outcomes of current <a href="#">Retail Procedure consultation</a>, AEMO is proposing 3 new codes and amendments to 2 further codes that it considers necessary for:               <ul style="list-style-type: none"> <li>Identifying integrated resource systems (IRS) and removing the current use of two NMIs for grid-scale storage facilities</li> <li>Appropriate application of market fees and unaccounted-for-energy (UFE)</li> <li>Incorporating changes relating to the new Small Resource Aggregator category</li> <li>Enabling appropriate compliance monitoring to protect the integrity of market settlements.</li> </ul> </li> </ul>
03 Jun 2024	Facilitating a new category, near universal participant type – Integrated Resource Provider (IRP)	<ul style="list-style-type: none"> <li>An Integrated Resource Provider will be able to classify a wide range of units.               <ul style="list-style-type: none"> <li>New category will help simplify registration, particularly for battery participants who currently need to register as both a customer and a generator.</li> <li>Existing Bi-directional unit (BDU) participants (generator/customer) transition to IRPs</li> <li>Small Generation Aggregators become IRPs</li> </ul> </li> </ul>
	Facilitating bi-directional units (BDU)	<ul style="list-style-type: none"> <li>A new unit type for plant (such as a battery) that can act as a generator and a consumer of electricity.</li> <li>There will also be a new approach to bidding whereby a BDU will use a single bid form, rather than the current two (one each for generation and consumption).</li> </ul>

# IESS: Indicative high-level impacts



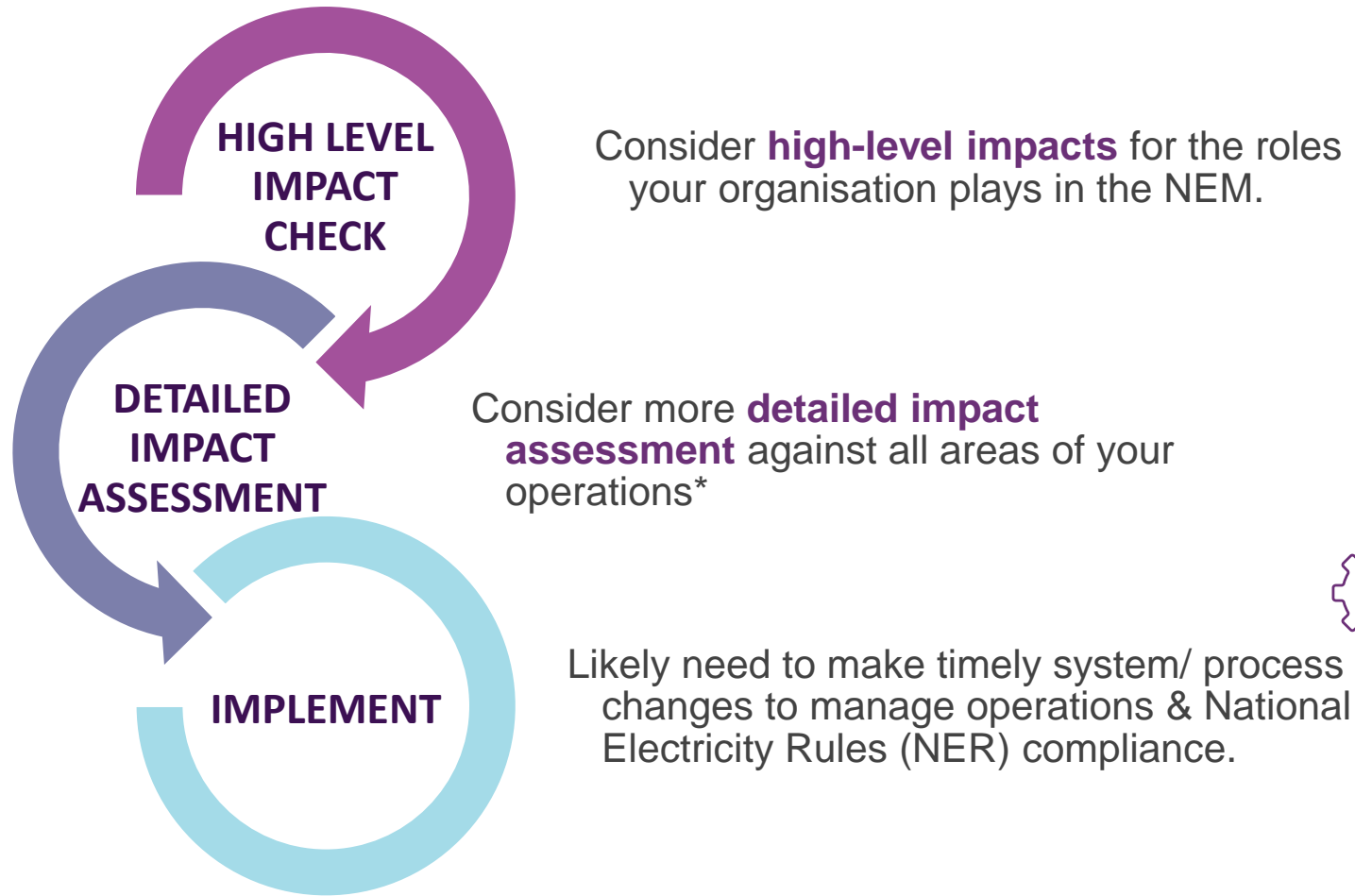
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AFFECTED MARKET SYSTEMS & PROCESSES	INDICATIVE PARTICIPANT CHANGE IMPACTS	AFFECTED PARTICIPANTS (TBC)													
		Generator	Sch. Load	SGA	IRP	FRMP	TNSP	DNSP	MC	MDP	MP	ENM	MSRP	Vendors	

<b>REGISTRATION</b>	<p><b>HIGH</b> for those:</p> <ul style="list-style-type: none"> <li>Opting for ADC</li> <li>New participants registering as IRP.</li> <li>Existing BDUs and SGAs transitioning to IRPs</li> </ul>	✓	✓	✓	✓									
<b>BIDDING &amp; DISPATCH</b>	<p><b>HIGH</b> level of process and IT impact, including:</p> <ul style="list-style-type: none"> <li>Potential control system changes to accommodate ADC</li> <li>Data model changes to accommodate BDU</li> <li>Bidding interface changes to accommodate BDU</li> </ul>	✓	✓		✓									✓
<b>RETAIL &amp; METERING</b>	<p><b>MODERATE</b> level of process and IT impact, includes:</p> <ul style="list-style-type: none"> <li>Standing data, National Meter Identifier classification changes</li> <li>Business to Market (B2M) interfaces / A Standard for Energy Transactions in XML (aseXML) changes</li> <li>RM reports</li> </ul>					✓	✓	✓	✓	✓	✓	✓		
<b>SETTLEMENTS</b>	<p><b>HIGH</b>, based on initial participant feedback. Includes:</p> <ul style="list-style-type: none"> <li>Fundamental change from generator/customer energy to energy generated /consumed</li> <li>Data model changes to accommodate Non Energy Cost Recovery changes</li> <li>Changes to Maximum Credit Limit (MCL) calculations and prudential forecasting</li> <li>Changes to Billing and Invoicing</li> </ul>	✓	✓	✓	✓	✓							✓	

<b>Generator</b>	Generators	<b>FRMP</b>	Financially responsible market participant	<b>MDP</b>	Metering data provider
<b>Sch. Load</b>	Scheduled loads	<b>TNSP</b>	Transmission network service provider	<b>MP</b>	Metering provider
<b>SGA</b>	Small generation aggregators	<b>DNSP</b>	Distribution network service provider	<b>ENM</b>	Embedded network manager
<b>IRP</b>	Integrated resource providers	<b>MC</b>	Metering coordinator	<b>MSRP</b>	Market SAPS resource provider

# IESS: Next steps for participants



**\*\*Please consider checking all areas affected by removal of SETGEN and SETCP settlement data tables and introduction of new tables\*\***



**TO LEARN MORE:**

- [IESS web pages](#)
- [Implementation Forum](#) for:
  - Detailed participant impact assessments (note Apr 2023 meeting pack)
  - Implementation timelines (updated every meeting)
  - Ongoing implementation support e.g. readiness, tech specs, testing etc

# 4. Foundational & Strategic initiatives

Ulrika Lindholm

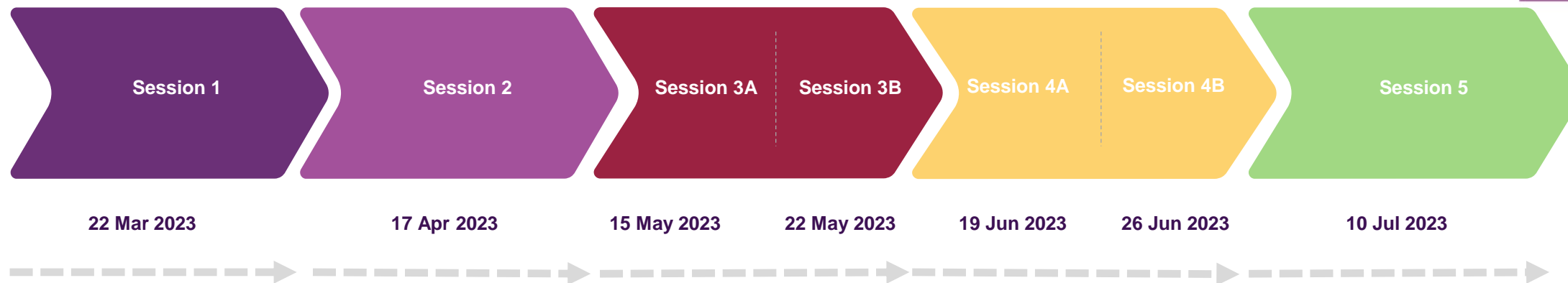
# Background – Strategic / Foundational initiatives

Pathway	Initiatives	Description
<b>Foundational</b> <ul style="list-style-type: none"> <li>Foundational dependency work to deliver an uplift to base capability on which reforms are dependent</li> </ul>	<ul style="list-style-type: none"> <li>Identity Access Management (IDAM)</li> </ul>	<ul style="list-style-type: none"> <li>A unified mechanism to authenticate participant users and applications when accessing Australian Energy Market Operator (AEMO) services.</li> </ul>
	<ul style="list-style-type: none"> <li>Industry Data Exchange (IDX)</li> </ul>	<ul style="list-style-type: none"> <li>Unified access to AEMO services across all markets, using modern authentication and communication protocols, facilitating a cohesive approach to industry data exchange. This will leverage IDAM</li> </ul>
<b>Strategic (Related)</b> <ul style="list-style-type: none"> <li>Strategic dependency work to effectively futureproof capabilities and scalability of systems thereby avoiding investment in systems that will become end-of-life shortly after the reforms take effect</li> </ul>	<ul style="list-style-type: none"> <li>Portal Consolidation (PC)</li> </ul>	<ul style="list-style-type: none"> <li>A 'single pane of glass' user experience for participants accessing all AEMO browser based services</li> </ul>

- These initiatives have been identified for the NEM Reform Program and included in the [NEM Reform Implementation Roadmap](#).
- AEMO is conducting an industry consultation process to determine a transition strategy and a business case for the three initiatives before any funding decision is made.
- AEMO facilitated a Discovery process for the Industry Data Exchange initiative in Feb-June 2021.

# Industry Consultation

Current focus of the consultation



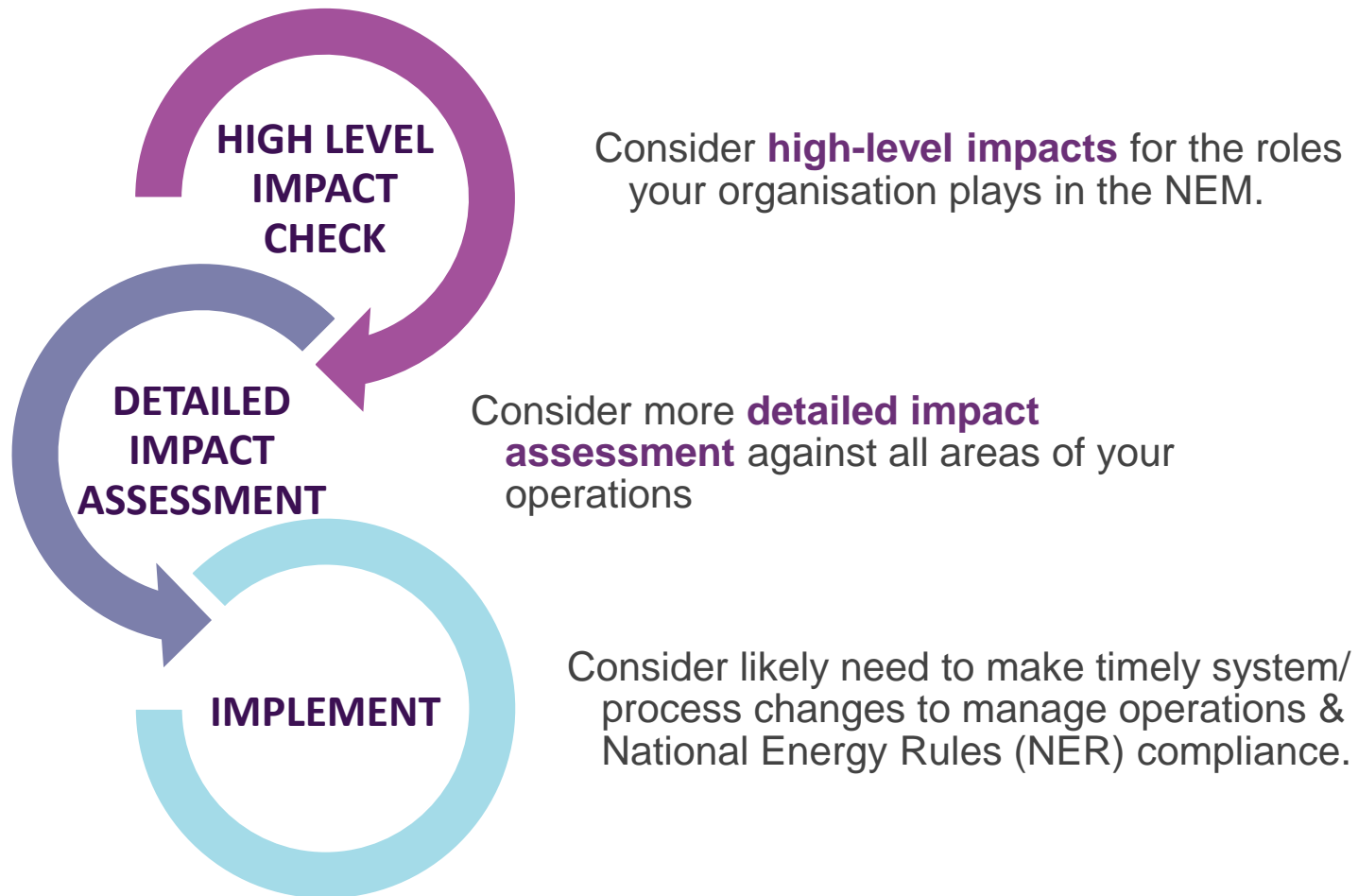
Session	Introduction – IDX, IDAM & PC	Discovery Workshops – IDAM and PC	Target State Discussion	Transition Strategy	Conclusions and Business Case
Agenda*	<ul style="list-style-type: none"> <li>Introduce initiatives</li> <li>Outline workshop plan</li> </ul>	<ul style="list-style-type: none"> <li>Pain points and benefits</li> <li>Survey</li> </ul>	<ul style="list-style-type: none"> <li>Concept walkthrough</li> </ul>	<ul style="list-style-type: none"> <li>Transition Strategy</li> <li>Impacts &amp; Benefits</li> </ul>	<ul style="list-style-type: none"> <li>Summary</li> <li>Options</li> </ul>
Audience		 	 	 	



# 5. Next steps


David Reynolds

# So what – indicative next steps



Tip! Consider which of the Forums on the next page might support you in these next steps.

# NEM Reform Program Engagement

Forums	Forum focus 	Cadence	Approach
Executive Forum	Program overview and status update	Twice yearly (TBC)	Nomination
Reform Delivery Committee (RDC)	Long term strategic perspective	Quarterly	Nomination
Program Consultative Forum (PCF)	Inflight initiatives status & co-ordination	Monthly	Open
Implementation Forum	Implementation of reforms	Monthly	Open
Electricity Wholesale (EWCF) & Electricity Retail (ERCF) Consultative Forums	Procedures working groups	Monthly	Open
Testing working group	Testing	Monthly	Open
Working groups	Inflight	As appropriate	As appropriate

## Focus/working Groups for inflight initiatives include:

- Initiative working groups
- Strategic and foundational focus groups (IDX/IDAM/PC)
- Industry Testing Working Group (ITWG) – IT technical implementations



To learn more about these forums, please visit

- [AEMO | NEM Reform Program Stakeholder Engagement](#)
- [AEMO | Industry meeting calendar](#)
- or contact the program at [NEMReform@aemo.com.au](mailto:NEMReform@aemo.com.au).

# 6. Q&A

David Reynolds

# Stakeholder questions

	Pre-submitted questions	AEMO's initial response
1	Will AEMO consider extending the duration of market trials, and more generally industry testing, to allow for additional contingency (using the lessons of previous initiatives)?	AEMO endeavours to plan for a sufficient Industry test/ market trial period for each initiative / release with the period reflecting the complexity and extent of changes required to AEMO and Participant processes. As such initiatives requiring a planned Market Trial will have a test period greater than a release where an industry test period of 4 weeks is planned. Milestones reflecting these planning assumptions are included in implementation plans and subject to participant feedback. Lessons from current/previous initiatives to be taken on board in setting these times.
2	How will the reform program affect the staffing needs of market participants? What NEM changes will impact organizational structures, and how will organizations need to adapt? What human capital demands may be impacted by the reform program?	Implementation of NEM reform initiatives have varying levels of impact on participant organisations depending on market roles, approach to participation and strategic direction. It is incumbent on individual participants to assess opportunity and impact of each of the reforms. As a starting point high level participant impacts have been mapped as part of the roadmap process and AEMO intends to provide updated participant impact assessments as each initiatives goes through the implementation phase
3	How settlement tables are going to get impacted out of NEM Reform Program?	During the design phase of each initiative impacts to participant interfaces, including Settlement tables supported in the Electricity Market Management System (EMMS) Data model, are assessed. Updated versions of the data model design and specification are included as key deliverables / milestones for implementation.
4	What is the current status of this program with reference to the timelines indicated for each initiative earlier?	The status of the committed initiatives within the NEM reform program is reflected on slide 9 above.

# 7. Thanks & close

Peter Carruthers



[NEMReform@aemo.com.au](mailto:NEMReform@aemo.com.au)



[AEMO | NEM Reform Program](#)



For more information visit

[aemo.com.au](http://aemo.com.au)

# Appendix A

AEMO Competition Law - Meeting Protocol





# AEMO Competition Law - Meeting Protocol

AEMO is committed to complying with all applicable laws, including the Competition and Consumer Act 2010 (CCA). In any dealings with AEMO, all participants agree to adhere to the CCA at all times and to comply with appropriate protocols where required to do so.

AEMO has developed meeting protocols to support compliance with the CCA in working groups and other forums with energy stakeholders. Before attending, participants should confirm the application of the appropriate meeting protocol.

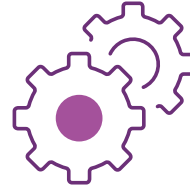
Please visit: <https://aemo.com.au/en/consultations/industry-forums-and-working-groups>

# Appendix B

Reference information



# Relevant resources



Initiative	Relevant links
<b>NEM Reform Program and stakeholder forums</b>	<a href="#">AEMO   Major Programs   NEM Reform Program</a> <a href="#">AEMO   NEM Reform Program Stakeholder Engagement</a> <a href="#">AEMO   Industry meeting calendar</a>
<b>NEM Reform Implementation Roadmap</b>	<a href="#">AEMO   NEM Reform Implementation Roadmap</a>
<b>Retail &amp; BAU initiatives</b>	<a href="#">AEMO   Consultations   Consumer Data Rights MSATS Consultation</a> <a href="#">AEMO   Consultations   Load Profiling Methodologies Consultation</a> <a href="#">AEMO   Consultations   Standalone Power Systems (SAPS) – Identifying a SAPS NMI in MSATS</a> <a href="#">AEMO   Consultations   B2B Procedures v3.8</a>
<b>Fast Frequency Response</b>	<a href="#">AEMC   Fast Frequency Response Market Ancillary Service</a> <a href="#">AEMO   Consultations   MASS Very Fast FCAS</a>
<b>Increased MT PASA information</b>	<a href="#">AEMC   Enhancing Information Generator Availability MT PASA</a> <a href="#">AEMO   Consultations   2022 Reliability Forecasting Guidelines and Methodology</a>
<b>Integrating Energy Storage</b>	<a href="#">AEMC   Integrating Energy Storage Systems NEM</a> <a href="#">AEMO   Major Programs   Integrating Energy Storage Systems project</a> <a href="#">AEMO   Forums &amp; Working Groups   IESS Working Group</a> <a href="#">AEMO   IESS Participant Toolbox</a>
<b>Frequency Performance Payments</b>	<a href="#">AEMC   Primary Frequency Response Incentive Arrangements</a> <a href="#">AEMO   Consultations   Frequency Contribution Factors Procedure</a>
<b>Foundational &amp; Strategic initiatives</b>	<a href="#">AEMO   Forums &amp; Working Groups   Foundational and Strategic Initiatives Focus Group</a>

# Glossary

## AEMO Website Links

- A comprehensive glossary of terms (and measurements) can be found [here](#) for your reference.

## AEMC Website Links

- For rules terms, see the relevant industry rules on the [AEMC website](#) > [Energy rules](#).

# Integrated Resource Provider (IRP) classifications & services from 03 Jun 2024

Source: Australian Energy Market Commission, [IESS Final Determination](#), 02 Dec 2021. p iv.

