

# Reform Delivery Committee Collaborative Workshop

7 February 2024



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 and present.**

# Agenda

#	Time	Topic	Presenter
1	1:00 – 1:05pm	<b>Welcome</b>	Violette Mouchaileh
2	1:05 – 1:10pm	<b>Actions &amp; Feedback from Previous Workshop &amp; Meeting</b>	Peter Carruthers
3	1:10 – 1:25pm	<b>AEMC Rule Change Update</b>	Andrew Pirie / Genevieve Schulz
4	1:25 – 1:45pm	<b>Change Management &amp; Roadmap Update</b>	Lance Brooks
5	1:45 – 2:00pm	<b>Bundling Opportunities Review</b>	Lance Brooks
6	2:00 – 2:25pm	<b>Foundational &amp; Strategic Initiative – Process Update</b>	Andrew Bell
7	2:25 – 2:30pm	<b>General Questions and Other Business</b>	Violette Mouchaileh

**Appendix A:** Competition law meeting protocol

**Appendix B:** Participant Impact Assessment

**Appendix C:** Foundational & Strategic Initiative - Background Context (excerpt from Business Case)

*"Please note that this meeting will be recorded by AEMO and may be accessed and used by AEMO for the purpose of compiling minutes. By attending the meeting, you consent to AEMO recording the meeting and using the record for this purpose. No other recording of the meeting is permitted"*

## **2. Actions & Feedback from Previous Workshop & Meeting**

# Actions

## RDC Workshop Actions

(Ref: Item = Meeting number/Agenda item number/Ref)

Item	Topic	Action	Responsible	Status
3.2.0.1	Enhancing reserve information	Andrew Pirie (AEMC) and Peter Carruthers (AEMO) to discuss next steps regarding the informed go-live process for Enhancing reserve information.	AEMC & AEMO	Open

## RDC Meeting Actions

(Ref: Item = Meeting number/Agenda item number/Ref)

Item	Topic	Action	Responsible	Status
12.3.0.1	Change Management and Roadmap Update	AEMO to confirm and notify RDC members when ST PASA consultation will begin.	AEMO	Closed – Update provided prior to meeting.
12.3.0.2	Change Management and Roadmap Update	AEMO to include PEC, ‘Clarifying mandatory primary frequency response obligations for bidirectional plant’ and ‘Review into electricity Compensation Frameworks’ into the Roadmap as part of the December 2023 publication.	AEMO	Closed
12.4.0.1	Progression of Foundational & Strategic initiatives	Members to provide feedback on the Foundational and Strategic initiatives scope and approach by emailing <a href="mailto:NEMReform@aemo.com.au">NEMReform@aemo.com.au</a> . Feedback due by 15 December	RDC members	Closed
12.4.0.2	Progression of Foundational & Strategic initiatives (IDX, IDAM, PC)	AEMO to provide ENA with a list of network participants who attend F&S sessions.	AEMO	Closed
12.6.0.1	Holistic DER Review	AEMO to consider outlining the initiatives associated with DER into themes when presenting back to RDC.	AEMO	Ongoing

# 3. AEMC Rule Change Update

Amy Wiech / Lisa Shrimpton (AEMC)

# AEMC rule change update



Unlocking CER benefits through flexible trading (Lisa Shrimpton)

- Draft determination to be published 29 February 2024

Improving security frameworks for the energy transition (Amy Wiech)

- Update paper was published on 14 December 2023

At the next RDC meeting on 6 March 2024, the AEMC will provide updates on the following rule changes:

- Integrating price-responsive resources into the NEM; and
- Enhancing reserve information

# 4. Change Management & Roadmap Update

Lance Brooks



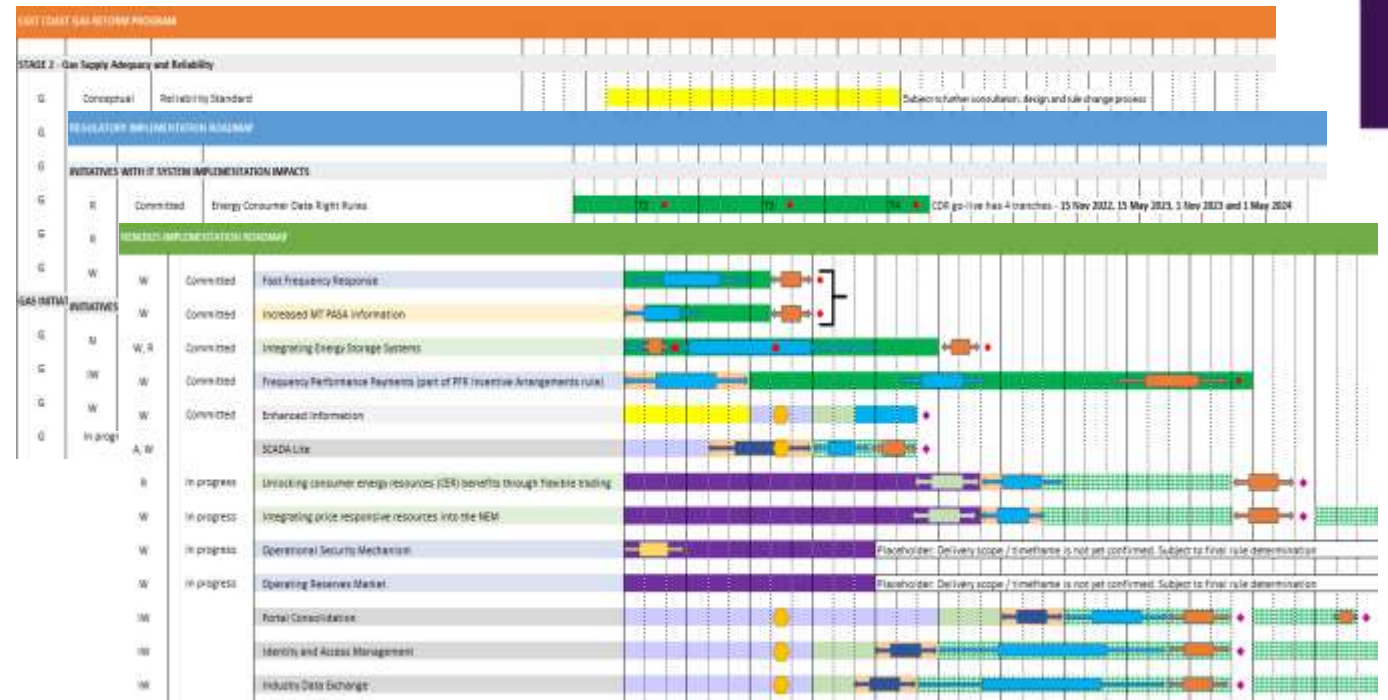
# Recap: Roadmap v3.1 published

Several material (and incremental) changes have been captured in the December 2023 publication of v3.1 of the Roadmap including:

- Unlocking CER benefits through flexible trading (revised DD date)
- Integrating Price Response Resources into the NEM (revised DD date)
- Enhancing Reserve Information (revised DD date)
- Improving Security Frameworks for the energy transition (revised FD date)
- Inclusion of MSATS Release / B2B / AseXML Release on main 'Roadmap' worksheet
- PEC Market Integration
- Review into electricity compensation frameworks

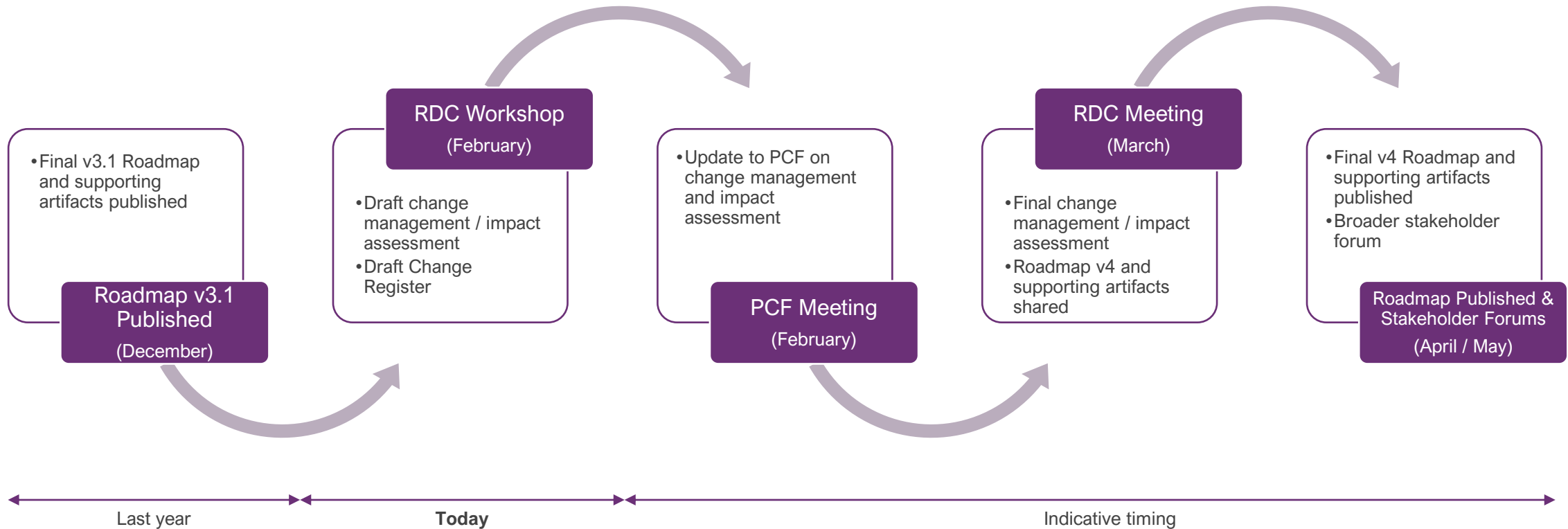
## NEM Reform Implementation Roadmap

(version 3.1 published 15 December 2023)



# Keeping the NEM Reform Implementation Roadmap up to date

Today's session represents the first step in the process of updating the Roadmap capturing both incremental or material changes across initiatives in accordance with the Change Management Process established for the NEM Reform Program



# Status: Reform Initiatives - FEB 2024 (1/2)



Items in bold represent an update from prior workshop

Initiative	Status	Notes / Assumptions
Integrated Energy Storage Systems	Committed solution delivery	No action proposed, proceed as planned
Frequency Performance Payments	Committed solution delivery	As above
ST PASA Replacement	Committed solution delivery	<b>AEMO is currently in the process of re-basing our project timeline to account for several impacts that have occurred over the last year. We are still working through this internally and our intention is to be in communication with external stakeholders as soon as possible</b>
Unlocking CER benefits through flexible trading	Rules consultation: DD now anticipated Feb 2024 (prev. Dec 2023). FD anticipated July 2024	FD assumed mid CAL24 will push implementation out to FY26
Integrating Price Response Resources into the NEM	<b>Rules consultation: DD now anticipated mid 2024 (prev. Feb 2024)</b>	Delays in rules consultation process likely to push implementation out to Q3 CAL 2026
Improving Security Frameworks for the Energy Transition	<b>Rules consultation: FD now anticipated Mar 2024 (prev. Dec 2023).</b>	Uncertain scope, likely implementation in FY26 (AEMO has noted it would not be able to meet Dec 2025 go-live as proposed). AEMO is commencing an internal assessment of implementation requirements including HLID / PIA.
Enhancing Reserve Information	<b>Rules consultation: DD published Dec 2023. FD anticipated Mar 2024</b>	Draft determination sets our proposed scope and timeline with implementation in phases (1 July 2025 and 1 July 2027). AEMO is completing internal assessment, including HLID and PIA prior to FD.

# Status: Reform Initiatives - FEB 2024 (2/2)

Items in bold represent an update from prior workshop

Initiative	Status	Notes / Assumptions
SCADA Lite	<b>Funding for execution approved by AEMO investment committee.</b>	Proposed start April / May 2024, Indicative go-live date August 2024
Congestion Relief Market & Priority Access	<b>Policy development: At the Nov 2023 Energy and Climate Change Ministerial Council (ECMC) meeting it was agreed to progress the agreed Transmission Access Reform and Congestion Management through further design work, having considered advice from the EAP and stakeholder engagement</b>	Significant scope of work if approved, Rules development to continue into mid 2024
EV Supply Equipment Standing Data Register	<b>AEMO submitted a RCR to AEMC December 2024</b>	Rule change consultation to run throughout 2024
DER: Various	<b>ESB End of Program Report delivered to Ministers. At the Nov 23 ESOM meeting Ministers agreed to:</b> <ul style="list-style-type: none"> <li><b>develop a National CER Roadmap.</b></li> <li><b>to give consideration to implementing a national approach to technical regulatory settings for consumer energy resources</b></li> <li><b>establishment of an expert taskforce to deliver priorities under the Roadmap</b></li> </ul>	Updates potential required to key priority areas to reflect CER Roadmap – including compiling into themes, as well as capture existing jurisdictional initiatives

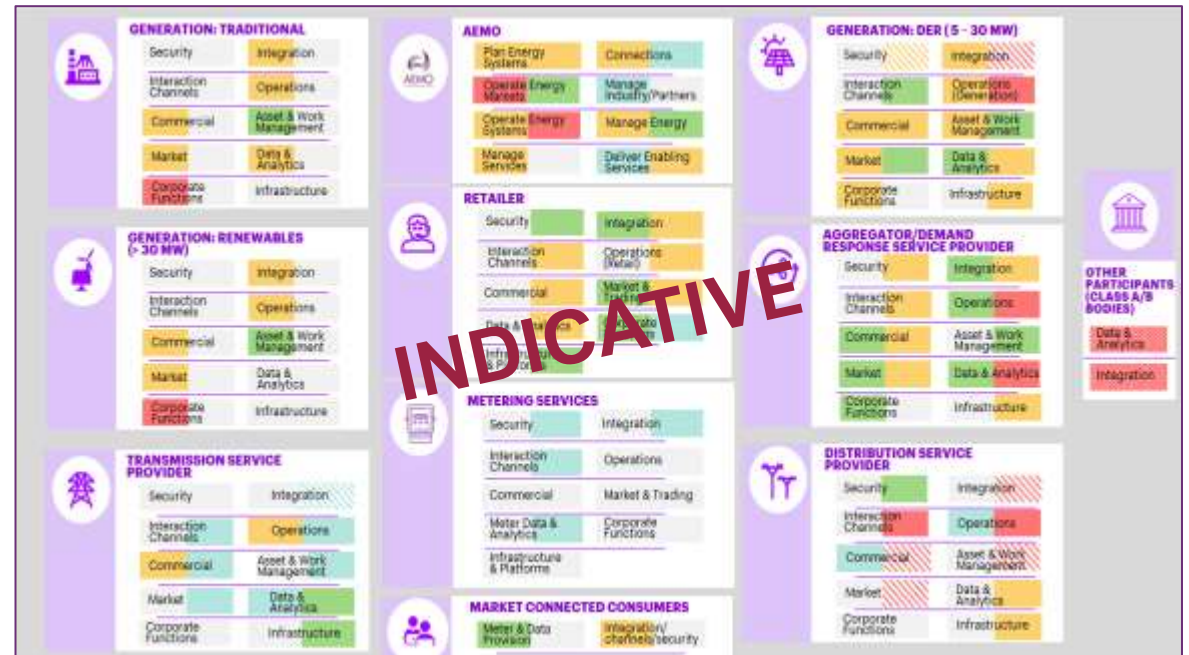
# 5. Bundling Opportunities Review

Lance Brooks

# Recap: November RDC Workshop

- **AEMO / RDC members** to revisit:
  - Industry impacts for each of the NEM Reform initiatives to determine process and technology changes required (heat maps)
  - Participant Impact Assessments
  - Bundle assessment to ensure key efficiencies are captured and actioned
  - Sequence assessment to ensure we are working on the right initiatives to progress the energy transition and driving efficiencies in delivery
- AEMO to present draft assessment for RDC consideration at **February 2024** meeting

## EXAMPLE HEATMAP



**AEMO propose this exercise become an annual process providing for a holistic review of the NEM Reform Program**

# Recap: Participant Impact Assessments

AEMO propose leveraging the program wide participant impact assessments (PIA) to inform the bundling and sequencing opportunities

- The outcomes of the PIA not only help AEMO in understanding the **extent of impacts** on participants and their systems or processes, but also **support better understanding of those bundling and sequencing opportunities** to drive efficient delivery of the overall NEM Reform Program
- Further, the assessments have been well received by participants as a guide to **which** initiatives are likely to have a material impact on their business, and **when and where** they should be giving their attention
- A **Program Wide Assessment** was completed in development of Version 1 of the Roadmap
- Individual Initiative Assessments** are completed as part of the delivery activities or informed go-live process

## PROGRAM WIDE ASSESSMENT



The screenshot shows a detailed report from AEMO titled 'Participant Impact Assessment'. It includes a table with columns for various impact categories and rows for different initiatives. Some cells in the table are highlighted in orange and yellow, indicating areas of concern or high impact.

## INDIVIDUAL INITIATIVE ASSESSMENT



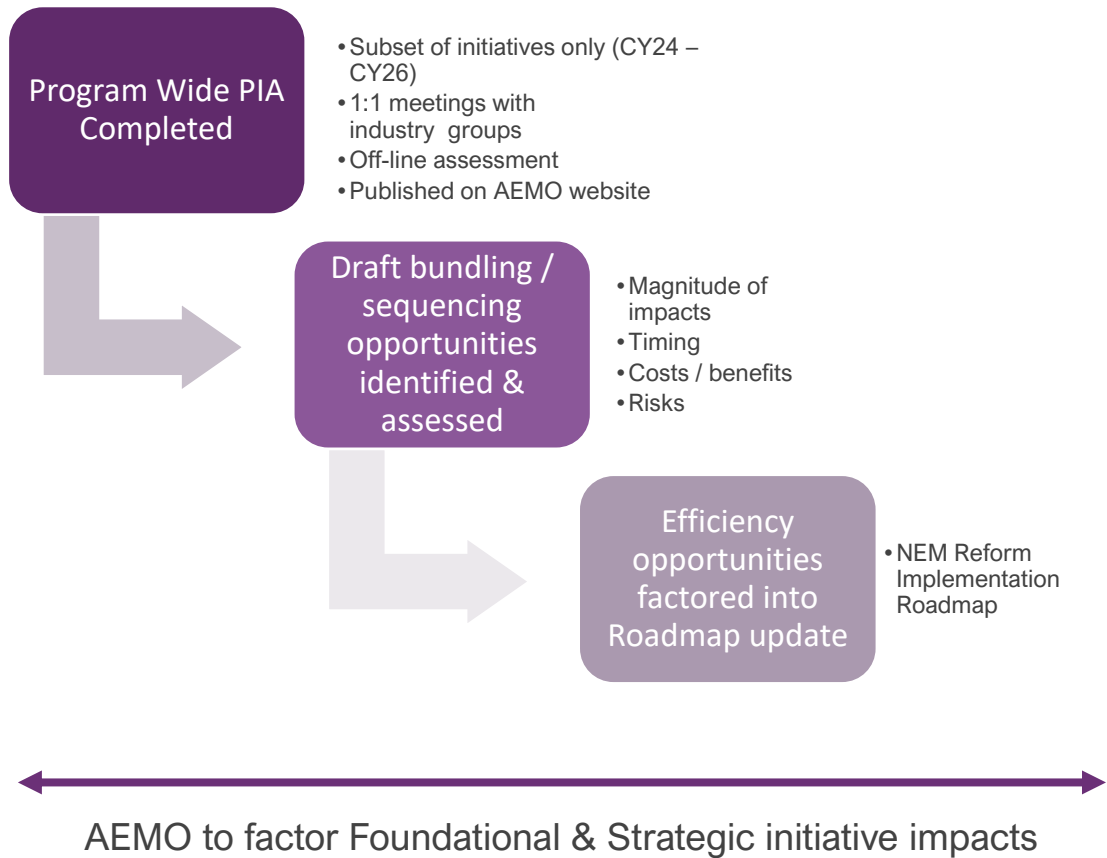
The screenshot displays two side-by-side assessment reports. The left report is for 'IESS: Indicative high-level impacts' and the right is for 'FPP: Indicative high-level impacts'. Both reports show a grid of impact data. Red callouts with dashed borders point to specific cells in the grids, stating 'EXAMPLE IMPACT ASSESSMENT as of MAY 2022' and 'EXAMPLE IMPACT ASSESSMENT as of MAY 2023'.

Refer to Appendix C for full assessment

# Identifying bundling and sequencing opportunities

Adaptations made to PIA workbook to reflect current individual initiative assessment

## PROPOSED PROCESS



- **Program Wide Assessment** completed for those initiatives with potential CY24 – CY26 release only including:
  - Enhanced reserve information
  - Improving security frameworks for the energy transition
  - Unlocking CER benefits through flexible trading
  - Integrating price response resources into the NEM
  - EV charging standing data register
  - CY24/25 initiatives including IESS & FPP completed via individual initiative assessment
- AEMO to **collaborate with RDC** members to understand impacts, timing, costs and benefits of potential bundling / sequencing opportunities
- Program wide assessment to predate a more detailed assessment as part of informed go-live

AEMO has commenced this assessment for those initiatives with CY24 release scheduled.



# Indicative Change Impact Assessment (CY24 only)

- AEMO has completed an initial assessment of the change impacts across its business for those initiatives with releases scheduled in CY24
- AEMO will complete a similar assessment for those initiatives with releases scheduled in CY25 and CY26

Only teams with a high impact rating across a single initiative or medium impact across two or more initiatives shown

Team	CY2024 Initiative Releases					
	Mar Release RMI (MSDR)	Jun Release IESS June 2024	Jun Release IESS June 2024 – <i>Transition</i>	Aug Release SCADA Lite	Sep Release RMI (Net System Load Profile)	Nov Release FPP – Non-Financial
Market Registration		High	High	Low		Med
Bidding & Dispatch		High	High	Low		Med
Retail & Metering	Low	Med	High		Med	
Settlements & Prudentials		High	Med			Low
Operational Support		Med	High	Med		
Systems Capability		Med	Med			High
NEM RTO		Med	Med	Low		

\* Teams aggregated for reporting purposes.

# 6. Foundational & Strategic Initiative – Process Update

Andrew Bell

# Introduction to this topic for the RDC

- AEMO committed to prepare Business Case for foundation/strategic initiatives and consult with Industry and with RDC.
- Draft Business Case for IDX, IDAM and Portal Consolidation now available – circulated to industry Dec 2023
- The following slides have been prepared from, or directly extracted from, the Draft Business Case
  - Represent a summary view of the process status, the value proposition of the business case, and the request of industry as part of the next steps
  - AEMO will assume the slides have been read and will provide only a brief overview during the RDC session, to allow time for discussion
- **Ask of the RDC for today's session is oriented towards the RDC acting in an advisory capacity**
  - **Providing feedback or insight on industry sentiment or key issues/challenges**
  - **Providing feedback or insight on the Business case, taking account of unique circumstances**
  - **Process from here, including decision-making**

# Background & Context

- AEMO and Industry collaborated via the Foundational and Strategic Initiatives (FaSI) Working Group through the course of 2023
- Industry input and feedback has been heard and options and recommendations developed to balance identified capability needs with capital constraints and delivery congestion. Key to this:
  - Our security posture across all market business services must be improved
  - Our market portals are disparate, difficult to navigate using multiple identities and inconsistent
  - We operate multiple legacy data exchange platforms and have no standard framework
- We are facing a critical juncture:
  - Energy Transition will continue to accelerate the introduction of new business services
  - In parallel the cyber threat landscape continues to evolve imposing new risks and requirements

# Background & Context – Options



- AEMO have assessed two broad options:
  - Continued reactive & tactical investment (minimum compliance for security)
  - Strategic step change – establishing fit for purpose foundational capability
- These options cover the three key capabilities originally identified as foundational for NEM Reform:
  - Identity and Access Management
  - Portal Consolidation
  - Industry Data Exchange
- AEMO recommends proceeding with strategic step change with a phased investment for Industry Data Exchange to provide:
  - Fit for purpose, resilient and secure foundation for existing Business Services
  - Building on this foundation, a framework that enables agile and efficient delivery of new Business Services
  - Extensibility to other Energy Markets

# Industry Consultation Update

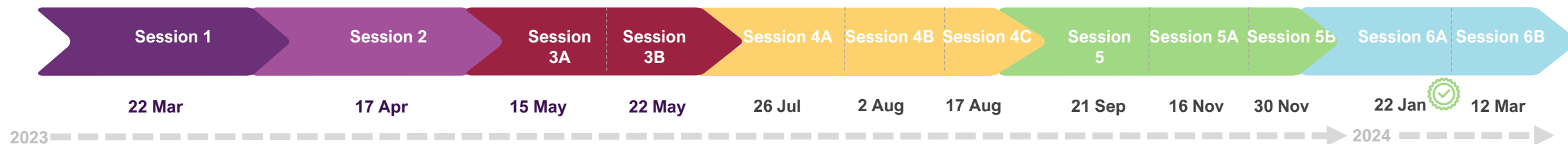
## The draft working Business Case is now under review

- Published in December 2023, FaSI Working Group walkthrough held 22 January 2024 to enable participants to commence preparation of formal submissions
- AEMO has provided an open opportunity for participants to directly engage via one-on-one sessions through this period

## Published information and materials:

- Focus Group webpage: <https://aemo.com.au/en/consultations/industry-forums-and-working-groups/list-of-industry-forums-and-working-groups/nem-reform-foundational-and-strategic-initiatives-focus-group>
- Any queries can be directed to [NEMReform@aemo.com.au](mailto:NEMReform@aemo.com.au)

Timing is indicative. Additional engagement requirements under assessment.

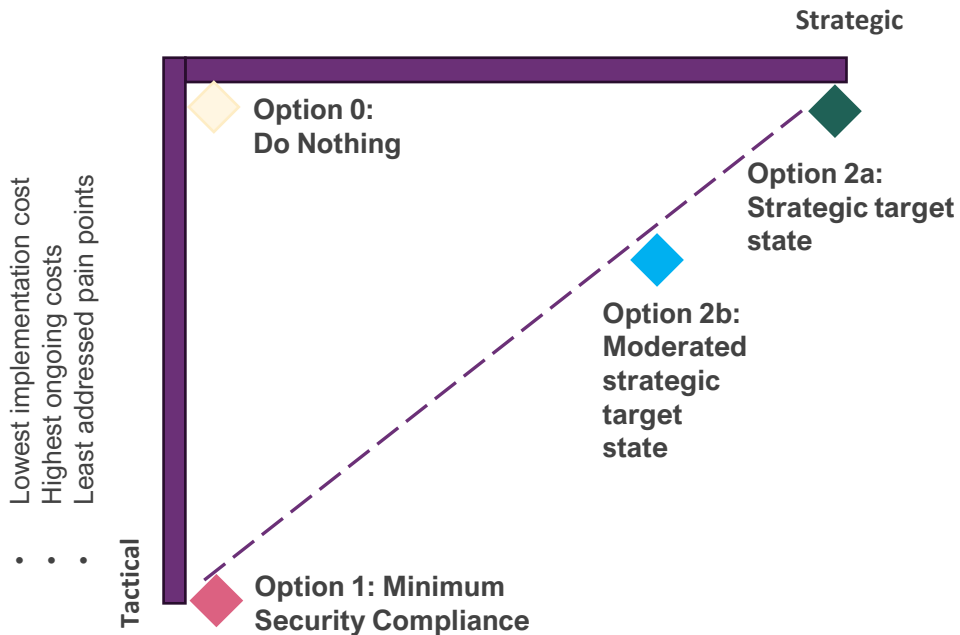


Session	Introduction	Discovery	Target State	Transition Strategy	Cost & Method	Business Case
Agenda	<ul style="list-style-type: none"> <li>Introduce initiatives</li> <li>Outline workshop plan</li> </ul>	<ul style="list-style-type: none"> <li>Pain points and benefits</li> <li>Survey</li> </ul>	<ul style="list-style-type: none"> <li>Concept walkthrough</li> <li>Survey</li> </ul>	<ul style="list-style-type: none"> <li>Transition Strategy</li> <li>Impacts &amp; Benefits</li> <li>Survey</li> </ul>	<ul style="list-style-type: none"> <li>Industry and AEMO costs</li> <li>Assumptions, options and methodology</li> </ul>	<ul style="list-style-type: none"> <li>Walkthrough of draft business case</li> <li>Assessment and completion</li> </ul>

# Options Development

We identified two main options which “bookend” the many possible options available: A tactical “minimum compliance” Option 1 and the target state solution Option 2a. Other available hybrid options could be finessed during Delivery.

- Highest implementation cost
- Lowest ongoing costs
- Addresses pain points



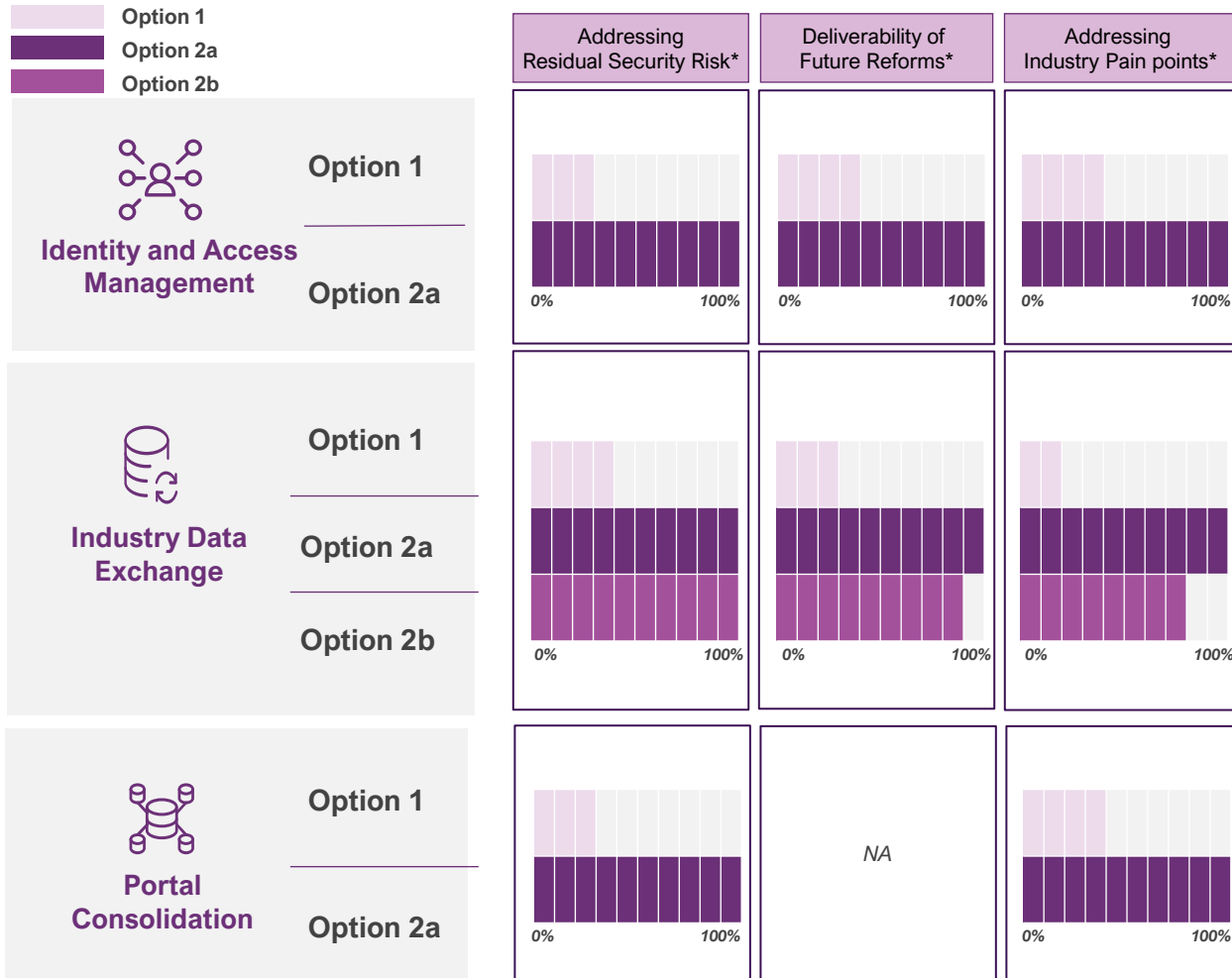
Option	Description
Option 0 – Do Nothing	We conducted a risk assessment against current system landscape & found this option unacceptable – our SOCI compliance obligations <b>would not be met</b> & cyber risks are <b>unacceptably high</b> . This option has therefore been discounted from further analysis.
Option 1 – Minimum Security Compliance	This option addresses the most egregious security risks from Option 0 and puts in controls to address remaining risks.
Option 2b – Strategic target state moderated by IDX payload (retains asexml)	This option arose during industry consultation as a potential hybrid option that dilutes the full benefits of target state in order to reduce estimated costs. It does not address all industry pain points.
Option 2a – Strategic target state	This is the strategic target future state, as collaboratively designed with industry to address identified industry pain points, enable deliverability of future reforms and materially address security risks.

While there are many hybrid options that could be considered reflecting different scope parameters, to simplify the analysis of the business case we considered options representing the minimum and maximum scope.

As the target state sets a ‘high’ bar in terms of cost, it is anticipated there is only upside should opportunities to rationalise or change scope be identified during Delivery, especially during the Design and Consultation phases.

# Assessing Options against key drivers

AEMO's assessment is that Option 2 is superior to Option 1 in (i) addressing security requirements, (ii) enabling future reforms to be delivered and (iii) addressing identified industry pain points.



## Key Notes

### Addressing Residual Security Risk

- **Option 1** addresses security pain points from a minimum compliance perspective. It still retains a large surface area of multiple identity systems, multiple data exchange protocols and technologies, and multiple entry points to AEMO's web presence.
- **Option 2** takes a strategic, 'secure by design' view to identity management, data exchange and portal access needs. It *unifies* platforms and protocols, thereby reducing our attack surface area

### Deliverability of Future reforms

- **Option 1** does not provide a holistic platform to support upcoming NEM2025 Reforms with respect to identity management and data exchange. As immediate examples, DER Data Hub and the requirement for Power Quality data from the Metering Services Review would need to be developed independently under Option 1.
- **Option 2** for IDAM and IDX is explicitly designed to provide this leverageable foundational capability

### Addressing Industry Pain Points




- **Option 2** was scoped in collaboration with industry to fully address identified industry pain points.
- **Option 1** addresses a very limited number of pain points

\*Percentages are derived from individual option ratings in relation to the overall score – please refer to 'option assessment' section for more details



# Financial Assessment: Full Scope Delivery (Industry-wide)

For IDAM and PC, Option 2 strategic target state compared to Option 1 addresses the key drivers at a delta TCO of \$40M1 and \$17M respectively – this is a conservative (high watermark) estimate given industry cost impacts associated with IDAM Option 1 and industry cost savings (benefits) associated with IDAM and PC have not been quantified. IDX Option 2 compared to Option 1 has a delta TCO of \$200M, due primarily to the costs associated with migrating legacy services.

		AEMO Costs		Industry Costs	
		Implementation	TCO	Implementation	TCO
 <b>Identity and Access Management</b>	<b>Option 1</b>	\$4M	\$20M	\$2M	<i>Costs expected but unquantified</i>
	<b>Option 2a</b>	\$21M	\$27M	\$35M	<i>Cost-savings expected but unquantified</i>
 <b>Industry Data Exchange</b>	<b>Option 1</b>	\$10M	\$45M	\$73M	<i>Costs expected but unquantified</i>
	<b>Option 2a</b>	\$51M	\$69M	\$249M	<i>Cost-savings expected but unquantified</i>
	<b>Option 2b</b>	\$42M	\$60M	\$174M	
 <b>Portal Consolidation</b>	<b>Option 1</b>	< \$1M	\$2M	< \$1M	<i>n/a</i>
	<b>Option 2a</b>	\$6M	\$7M	\$13M	<i>Cost-savings expected but unquantified</i>

## Recommendations

**PROCEED** with IDAM Strategic target state, conservative industry-wide delta TCO of \$40M is justified by the reduction in residual security risk and industry pain point benefits.

**UNABLE TO RECOMMEND TO FULLY PROCEED AT THIS STAGE** – Industry cost impacts relating to transition reflect a high level of uncertainty, recommend a reconsideration of investment approach (see following slide)

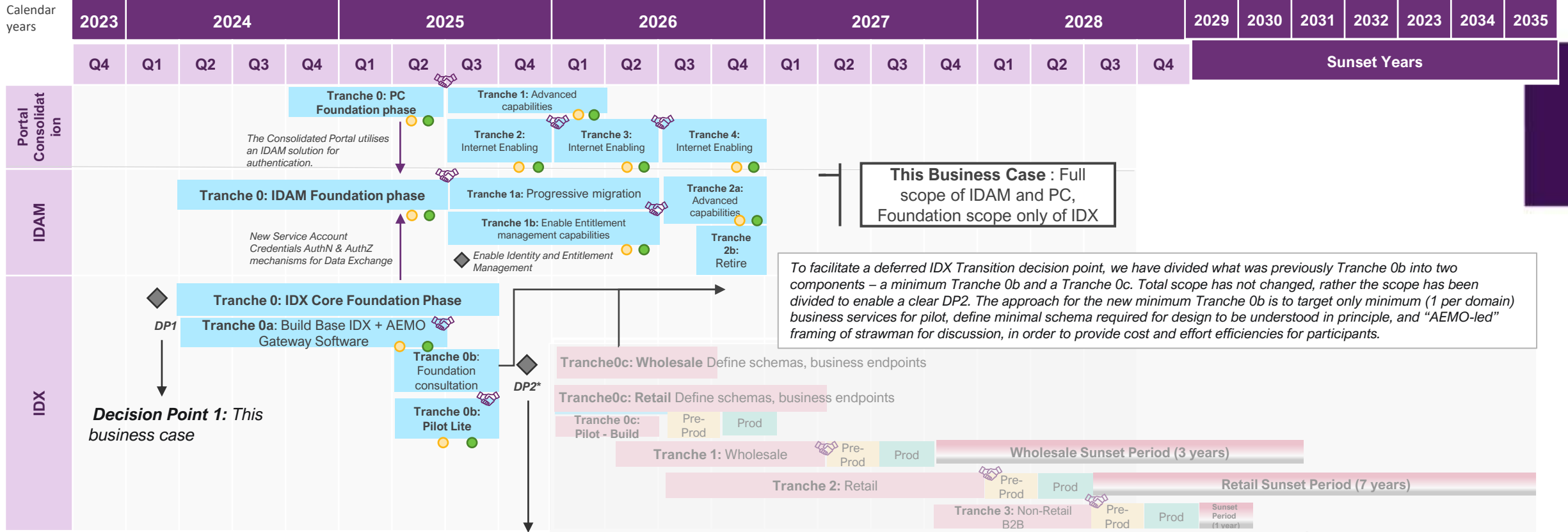
**PROCEED** with PC strategic target state, conservative industry-wide delta TCO of \$17M is justified by the reduction in residual security risk and industry pain point benefits.

1. All financial figures presented on this slide have a +/- of 40%

# Phased Investment Delivery Timeline



This timeline was developed in collaboration with industry. To facilitate a phased investment decision approach, we have modified the IDX timeline to divide activities into two decision points – Decision Point 1 (this business case, Q1 2024) for IDX Foundation and Decision Point 2 (a new business case, Q4 2025) for IDX Transition. This has involved a sharp reduction in scope for Tranche 0b to minimal activities only.



**This Business Case :** Full scope of IDAM and PC, Foundation scope only of IDX

To facilitate a deferred IDX Transition decision point, we have divided what was previously Tranche 0b into two components – a minimum Tranche 0b and a Tranche 0c. Total scope has not changed, rather the scope has been divided to enable a clear DP2. The approach for the new minimum Tranche 0b is to target only minimum (1 per domain) business services for pilot, define minimal schema required for design to be understood in principle, and “AEMO-led” framing of strawman for discussion, in order to provide cost and effort efficiencies for participants.

**\*Decision Point 2:** The timeline for activities listed within DP2 Business Case: IDX Transition would be finalised as part of the business case associated with DP2. Note that this revised timeline does not extend the previously socialised timeline in total.

**DP 2 Business Case:** IDX Transition scope only\*

# Financial Assessment: IDX Foundation Revised Scope (Industry Wide)



For AEMO, this division of scope and consideration of financial impacts based on new services only yields a clearly superior TCO for developing this capability holistically (Option 2 IDX Foundation) rather than initiative by initiative (Option 1). We do not currently have data points for industry costs under these scope scenarios and seek industry submissions. As a starting point for discussion, if we can take an assumption that industry cost impacts scale in a similar ratio to AEMO's cost impacts, Option 2 is a better TCO by \$38M\* than Option 1 Industry-wide.

New Services Only		AEMO Costs		Industry Costs		Recommendation
		Implementation	TCO	Implementation	TCO	
 Industry Data Exchange	Option 1 (new initiatives)	n/a	\$29M	n/a	~\$94M <sup>3</sup> <i>(strawman estimate based on scaling)</i>	<b>PROCEED</b> with IDX Strategic target state Foundation phase, AEMO investment of <b>\$20M</b> over 2 years
	Option 2 (IDX Foundation only)	\$20M <sup>1</sup>	\$20M	~\$65M <sup>2</sup> <i>(strawman estimate based on scaling)</i>	~\$65M	



	Scope of Option 1 (new initiatives):	Scope of Option 2: IDX Foundation Only
<b>Implementation</b>	Nothing – no cross-initiative foundational capability is developed ahead of new NEM reform initiatives	Establish Foundational data exchange capability for energy transition and industry-driven priorities that can be used in upcoming reforms. Specifically, reduce Scope of Tranche 0b to limit the pilot, minimise consultation on legacy services schema to be 1-2 services per domain.
<b>Ongoing (new reforms)</b>	For each upcoming reform, data exchange requirements are assessed and solutioned for in independent consultations and design processes.	The data exchange component of new reforms has been budgeted on the basis of this framework already being developed and tested and consultations conducted.

1. In assessing AEMO's cost impact for this revised (reduced) scope of Tranche 0b, we determined a cost split of the original \$13M Tranche 0b cost into a revised scope Tranche 0b of \$4M and a new Tranche 0c of \$9M.
2. We have no data point from industry specifically for this revised scope. If we apply the same ratio of cost reduction from AEMO (4:9) to industry's Tranche 0b costs, we obtain a total of ~\$65M, noting that we would expect industry apportioning for IDX Foundation to be less than AEMO's since we are proposing an AEMO-led approach.
3. We have no data point from industry on the expected cost of new reforms without a foundational capability in place. If we apply the same ratio of AEMO for foundational vs initiative by initiative (namely, \$20M:\$29M) then we obtain a total cost of ~\$94M.

\* All financial figures have a +/- 40% uncertainty

# Recommendation Summary

Compelling drivers exist to develop new foundational capability across IDAM, IDX and PC areas. Given short term reform roadmap congestion & need for fiscal prudence, **AEMO recommends a phased investment approach for IDX** to address critical security needs, support near-term NEM reforms, provide flexibility for the future & address priority industry pain points.

## RECOMMENDATION

## RATIONALE



Identity and Access Management

**PROCEED** with a Strategic target state, AEMO investment of **\$21M** over 2 years

- Address key security vulnerabilities and reduce attack surface area – identity management is the most impactful “weak link” in the cyber security chain
- Manage expected increase in identities for management: DERs, small generators
- AEMO TCO cost differential of **\$7M**, & total Industry costs of **\$35M** are smaller than the potential cost and customer impact of security breaches



Industry Data Exchange

**PROCEED** with a Strategic target state Foundation phase, AEMO investment of **\$20M** over 2 years

**DEFER** decision on Transition phase to Q4 2025.

- As the grid becomes digitised, data exchanged is increasing in volume, frequency and requires lower latency
- IDX Foundation phase represents an efficient and unified implementation of data exchange capabilities across multiple reforms requiring it (AEMO costs are **\$20M** compared to **\$29M** if done initiative by initiative, and if participant cost ratios are similar, then total industry costs would be **~\$65M** compared to **~\$94M** if done piece-meal)
- Migrating legacy services is difficult to assess at this stage given the cost uncertainty and value uncertainty. Deferring the decision point on migrating legacy services – IDX Transition phase – allows for more certainty on cost and value estimates and more information to guide optimising the transition approach.



Portal Consolidation

**PROCEED** with a strategic target state, AEMO investment of **\$6M** over 2 years

- Portal Consolidation Strategic target state delivers benefits to address identified industry pain points for a cost of **\$6M** for AEMO and **\$13M** for industry
- Reduces AEMO’s attack surface area in the most common ‘entry point’ for bad actors

# Summary: This Business Case

		IDAM		IDX		PC		This Business Case	
		Option 1	Option 2a	Option 1	Option 2a/2b (Foundation)	Option 1	Option 2a	Option1	Option 2a
AEMO	Implementation cost	\$4M	\$21M	n/a	\$20M	<1M	\$6M	\$5M	\$47M
	Cost <sup>2</sup> impact to support DER, PQ Data (No foundation)	\$3M	\$0	\$7M	\$0	n/a	n/a	\$10M	\$0
	Cost <sup>3</sup> impact to future NEM reforms in absence of foundation	\$11M	\$0	\$22M	\$0	n/a	n/a	\$33M	\$0
	Delta operational cost <sup>1</sup> to support new capabilities and legacy services	\$2M	\$6M	n/a <sup>4</sup>	n/a <sup>4</sup>	\$1M	\$1M	\$3M	\$7M
	<b>Total cost of ownership (12 years for IDX, 7 years for IDAM &amp; PC)<sup>1</sup></b>	<b>\$20M</b>	<b>\$27M</b>	<b>\$29M</b>	<b>\$20M</b>	<b>\$2M</b>	<b>\$7M</b>	<b>\$51M</b>	<b>\$54M</b>
	Industry	Implementation cost	\$2M	\$35M	n/a	~\$65M <sup>6</sup> (seeking feedback)	<\$1M	\$13M	\$3M
Cost <sup>2</sup> impact to support DER, PQ Data (No foundation) Cost <sup>3</sup> to support new reforms other upcoming NEM Reform initiatives (in absence of foundation)		Costs expected but unquantified	\$0	~\$94M <sup>2,3</sup>	\$0	n/a	n/a	> ~\$94M <sup>2,3</sup>	\$0
Delta operational cost <sup>5</sup> to support new capabilities and legacy services		unquantified	unquantified	n/a	n/a	unquantified	unquantified	unquantified	unquantified

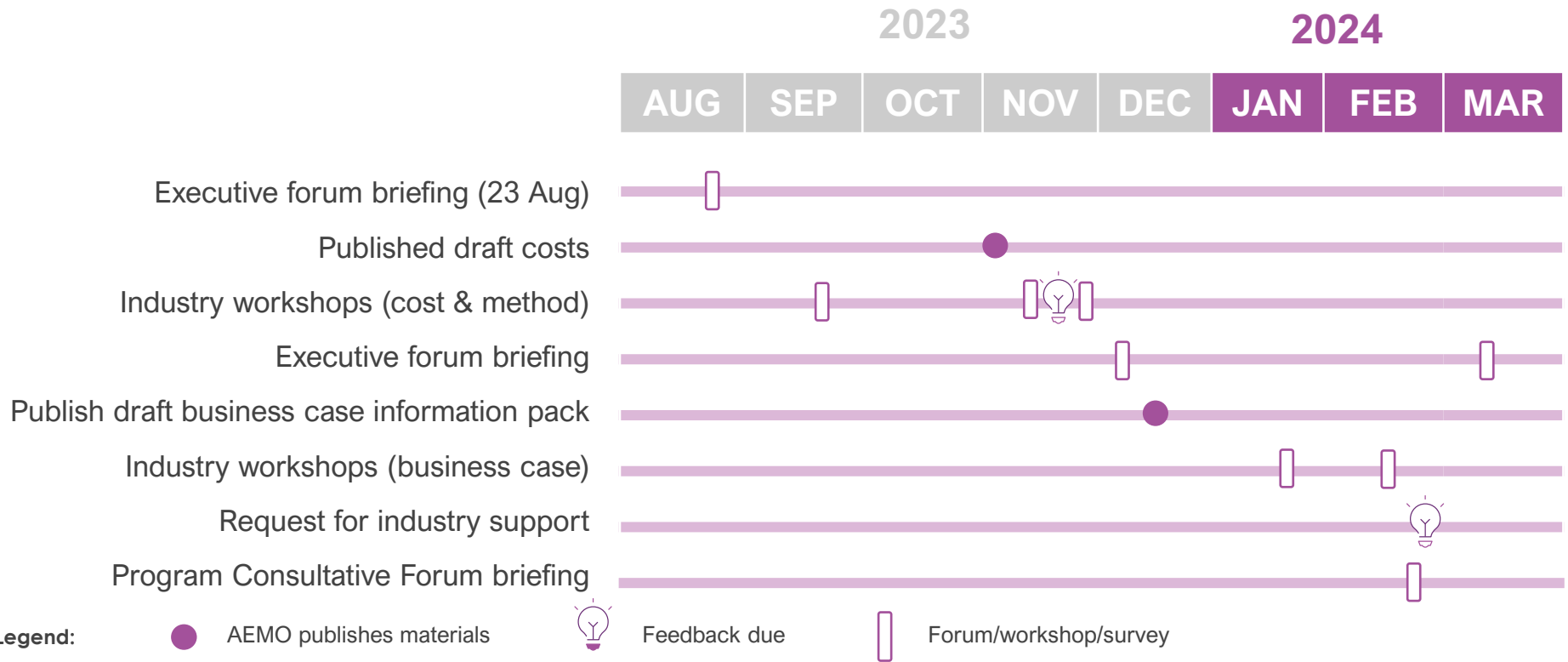
**All estimates have an uncertainty range of +/- 40%**

- All estimates are incremental cost to the projected current baseline
- Whilst the cost of implementing DER Data Hub and PQ data are covered in those reforms, there is an assumption in those costs that foundational capability would be in place. This cost impact category relates to the cost impacts incurred in the event that foundational capability would not be in place
- The energy transition will require an increasing volume, diversity and frequency of data exchange between a wider cohort of energy stakeholders to sustain new market processes. Leveraging the estimated impacts for the upcoming reforms, we anticipate a cost impact on the future budgeted NEM program if the foundational capability was not available, estimated at 10% for data exchange, and 5% for identity management.
- IDX foundation does not result in a net delta to operational cost noting that new NEM reforms will be responsible for assessing any uplift requirements for their own projects and the uplift to legacy services will be assessed at **Decision Point 2**
- Industry submissions haven't quantified savings for Delta operational cost
- Based on industry participant cost breakdown received on an earlier scope statement, 1:1 interactions, and AEMO's ratio of Foundation to Transition, noting that AEMO has the bulk of work in Foundation. AEMO welcomes industry feedback

# Intended process: Business Case

This process is guided by the NEM Reform investment governance framework, agreed with the Reform Delivery Committee and published in September 2022\*:

- ❖ AEMO to put forward a recommended option.
- ❖ Broad industry support will be sought following conclusion of industry workshops.
- ❖ Industry views will inform AEMO internal governance.



Timing is indicative. Additional engagement with Executive forum members to be informed by industry matters raised.

Legend: ● AEMO publishes materials    💡 Feedback due    □ Forum/workshop/survey

\*Published information and materials:  
<https://aemo.com.au/en/initiatives/major-programs/nem-reform-implementation-roadmap>

# Next Steps: Key Milestones

Date	Key Milestones
<b>Tuesday 19 December 2023</b>	Release of draft business case package
<b>Monday 22 January 2024</b>	Draft business plan walk through session with stakeholders
<b>Tuesday 23 January to Thursday 8 February 2024</b>	Additional 1 on 1 meetings with stakeholders – contact <a href="mailto:NEMReform@aemo.com.au">NEMReform@aemo.com.au</a> to arrange
<b>Friday 9 February 2024</b>	Stakeholder submissions due on draft business case package <a href="mailto:NEMReform@aemo.com.au">NEMReform@aemo.com.au</a>
<b>Wednesday 14 February 2024</b>	Program Consultative Forum (PCF) meeting update
<b>Monday 26 February 2024 (TBC)</b>	Publish “Business Case – Draft”
<b>Tuesday 12 March 2024</b>	Second and final stakeholder session – walk through of updates, next steps, closure of working group
<b>Thursday 28 March 2024</b>	Present at NEM Reform Executive Forum “Business Case – Draft”
<b>End April 2024 (TBC)</b>	Issue final Business Case and confirm Decision.

# Next Steps: The ask provided to FaSI WG

## Ask of FaSI

- Work with your organisation to ensure the right people are involved to review the draft business case package, including your Executive Forum representatives.
- Consider any feedback on package of materials, particularly AEMO recommendations.
- Provide formal submissions to Draft Business Case Package by **Friday 9 February 2024** to [NEMReform@aemo.com.au](mailto:NEMReform@aemo.com.au)
- Contact AEMO to participate in one-on-one sessions in January/February 2024 – [NEMReform@aemo.com.au](mailto:NEMReform@aemo.com.au)
- Attend second and final stakeholder session on **Tuesday 12 March 2024**.



# 7. General Questions / Other Business

# Appendix A: 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.

To access the full protocol at AEMO's website, visit: <https://aemo.com.au/en/consultations/industry-forums-and-working-groups>

# Appendix B: Change Management & Impact Assessment

# Change Management & Impact Assessment

<b>DATE:</b>	30 January 2024
<b>NEM2025 INITIATIVE:</b>	Integrating price responsive resources into the NEM (formerly known as Scheduled Lite)
<b>SUBJECT:</b>	Change in timeline greater than 2 months

**What are the implementation impacts to Participants?**

## IMPACT ASSESSMENT

QUESTION / ASSESSMENT	RESPONSE / DESCRIPTION
What is the nature of the change?	<ul style="list-style-type: none"> <li>AEMC extension of draft determination publication to mid 2024</li> </ul>
When is the change to come into effect?	<ul style="list-style-type: none"> <li>Immediate</li> </ul>
What are the impacts to AEMO?	<ul style="list-style-type: none"> <li>Adjustment of implementation project schedules to reflect updated timing</li> </ul>

**AEMO Advice & Conclusions:**  
 Extension of roadmap timeline with the initiative go-live date pushed out to Q3 CAL 2026

**RDC Advice & Conclusions:**  
 Input sought from RDC

**AEMC Advice & Conclusions:**  
 Input sought from AEMC

# Change Management & Impact Assessment

<b>DATE:</b>	30 January 2024
<b>NEM2025 INITIATIVE:</b>	Enhancing Reserve Information (formerly known as Operating Reserves Market)
<b>SUBJECT:</b>	Change in scope and timeline greater than 2 months

**What are the implementation impacts to Participants?**

## IMPACT ASSESSMENT

QUESTION / ASSESSMENT	RESPONSE / DESCRIPTION
<b>What is the nature of the change?</b>	<ul style="list-style-type: none"> <li>The AEMC made a draft ruling not to implement an operating reserve market, following analysis of the issues, stakeholder feedback to the directions paper and recent reforms.</li> <li>The draft rule would publish information on the energy availability including: <i>State of charge</i>: the energy availability of batteries (i.e. state of charge in MWh), <i>Daily energy constraints</i>: the energy constraints of other scheduled plant types (hydro, gas and coal) and <i>Maximum storage capacity</i>: storage participants would need to provide their maximum storage capacity (MWh) to AEMO in their bid and offer validation data</li> <li>A final determination is expected by 21 March 2024 with a potential two stage implementation schedule - Stage 1 commencing 1 July 2025 and Stage 2 commencing 1 July 2027.</li> </ul>
<b>When is the change to come into effect?</b>	<ul style="list-style-type: none"> <li>Immediate</li> </ul>
<b>What are the impacts to AEMO?</b>	<ul style="list-style-type: none"> <li>Adjustment of implementation project schedules to reflect updated timing</li> </ul>

**AEMO Advice & Conclusions:**  
 Extension of roadmap timeline with the initiative go-live date pushed out - Stage 1 commencing 1 July 2025 and Stage 2 commencing 1 July 2027.

**RDC Advice & Conclusions:**  
 Input sought from RDC

**AEMC Advice & Conclusions:**  
 Input sought from AEMC

# Change Management & Impact Assessment

<b>DATE:</b>	30 January 2024
<b>NEM2025 INITIATIVE:</b>	SCADA Lite
<b>SUBJECT:</b>	Change in timeline greater than 2 months

**What are the implementation impacts to Participants?**

## IMPACT ASSESSMENT

QUESTION / ASSESSMENT	RESPONSE / DESCRIPTION
<b>What is the nature of the change?</b>	<ul style="list-style-type: none"> <li>SCADA Lite solution go-live extended to end August 2024 from March 2024. Work on this initiative is likely to start in May 2024. This follows funding approval by AEMO’s investment committee in December 2023.</li> </ul>
<b>When is the change to come into effect?</b>	<ul style="list-style-type: none"> <li>Immediate</li> </ul>
<b>What are the impacts to AEMO?</b>	<ul style="list-style-type: none"> <li>Adjustment of implementation project schedules to reflect updated timing</li> </ul>

**AEMO Advice & Conclusions:**  
 Extension of roadmap timeline with the initiative go-live date pushed out to end August 2024.

**RDC Advice & Conclusions:**  
 Input sought from RDC

**AEMC Advice & Conclusions:**  
 Input sought from AEMC

# Change Management & Impact Assessment

<b>DATE:</b>	30 January 2024
<b>NEM2025 INITIATIVE:</b>	IDAM, IDX and Portal Consolidation
<b>SUBJECT:</b>	Change in timeline greater than 2 months

**What are the implementation impacts to Participants?**

## IMPACT ASSESSMENT

QUESTION / ASSESSMENT	RESPONSE / DESCRIPTION
<b>What is the nature of the change?</b>	<ul style="list-style-type: none"> <li>In December 2023, AEMO published its draft business case on key foundational and strategic initiatives IDAM, IDX and Portal Consolidation. This business case provides for minor (proposed) updates to implementation timeline shown in the Roadmap</li> </ul>
<b>When is the change to come into effect?</b>	<ul style="list-style-type: none"> <li>Immediate</li> </ul>
<b>What are the impacts to AEMO?</b>	<ul style="list-style-type: none"> <li>Monitor project schedules – subject to business case approval</li> </ul>

**AEMO Advice & Conclusions:**  
 Roadmap timeline updated to reflect draft (or final) business case approval. Assumes implementation in multiple tranches.

**RDC Advice & Conclusions:**  
 Input sought from RDC

**AEMC Advice & Conclusions:**  
 Input sought from AEMC



# Change Management & Impact Assessment

<b>DATE:</b>	30 January 2024
<b>NEM2025 INITIATIVE:</b>	Bill Transparency / Network Visibility
<b>SUBJECT:</b>	Change in timeline greater than 2 months

**What are the implementation impacts to Participants?**

## IMPACT ASSESSMENT

QUESTION / ASSESSMENT	RESPONSE / DESCRIPTION
<b>What is the nature of the change?</b>	<ul style="list-style-type: none"> <li>Following the transition from the ESB, the AER and AEMC are now leading the work focusing on Network Visibility and Bill Transparency respectively. Both market bodies have open consultations.</li> <li>AEMC to produce a draft ruling on Bill Transparency by 26 September 2024.</li> </ul>
<b>When is the change to come into effect?</b>	<ul style="list-style-type: none"> <li>Immediate</li> </ul>
<b>What are the impacts to AEMO?</b>	<ul style="list-style-type: none"> <li>To be determined – AEMO to monitor consultation processes</li> </ul>

**AEMO Advice & Conclusions:**  
Roadmap timeline updated to reflect open AER and AEMC consultation processes

**RDC Advice & Conclusions:**  
Input sought from RDC

**AEMC Advice & Conclusions:**  
Input sought from AEMC

# Change Management & Impact Assessment

<b>DATE:</b>	30 January 2024
<b>NEM2025 INITIATIVE:</b>	DER Various: DOE, DER Data Hub & Registry Services, DER Operational Tools, Distribution Local Network Services
<b>SUBJECT:</b>	Change in timeline greater than 2 months

**What are the implementation impacts to Participants?**

## IMPACT ASSESSMENT

QUESTION / ASSESSMENT	RESPONSE / DESCRIPTION
What is the nature of the change?	<ul style="list-style-type: none"> <li>At the Energy and Climate Change Ministerial Council (ECMC) meeting in November 2023, Ministers agreed to:               <ul style="list-style-type: none"> <li>develop a National CER Roadmap.</li> <li>to give consideration to implementing a national approach to technical regulatory settings for consumer energy resources</li> <li>establishment of an expert taskforce to deliver priorities under the Roadmap</li> </ul> </li> </ul>
When is the change to come into effect?	<ul style="list-style-type: none"> <li>Immediate</li> </ul>
What are the impacts to AEMO?	<ul style="list-style-type: none"> <li>To be determined</li> </ul>

**AEMO Advice & Conclusions:**  
 Roadmap timeline updated to reflect ongoing policy development. Further review of DER initiatives and how they are captured in the Roadmap to be completed post publication of the CER Roadmap.

**RDC Advice & Conclusions:**  
 Input sought from RDC

**AEMC Advice & Conclusions:**  
 Input sought from AEMC

# Appendix C: Participant Impact Assessment

Integrated Energy Storage Systems  
Frequency Performance Payments

# IESS: 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)													
		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>	✓	✓	✓	✓	✓								✓	

**EXAMPLE IMPACT ASSESSMENT as of MAY 2023**

<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

# 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)													
		Generator	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>	✓	✓	✓	✓	✓									

**EXAMPLE IMPACT ASSESSMENT as of MAY 2023**

<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

# Appendix D: Foundational and Strategic Initiatives

# Background Context (excerpt from Business Case)

AEMO was established in 2009 and has since expanded its mandate and technology landscape to cover the NEM, WEM, and gas markets, leading to the use of diverse solutions by industry participants and AEMO in a fragmented technology environment. This has led to increased systems complexity and inefficiencies, and higher AEMO and Industry costs, exacerbated by a strong tendency of back-compatibility as new services are rolled out. As the energy transition rollout continues at pace, the market systems required a review to assess the ability to provide a foundation for future requirements.

Given the inflection point we are at as an industry, we believe that now is the time to assess whether strategic step-change investments in these foundational services is preferred over continuing to invest in tactical legacy software. This working draft business case aims to assess the benefits and costs of those different approaches.

## Key Drivers for Change



### Energy Industry Transformation

**Energy Transition** imposes the **most significant set of reforms** on the Australian energy industry since the creation of the NEM.

We are at a pivotal juncture: whether to allocate these resources **strategically** to provide a secure and fit-for-purpose technology foundation to deliver better consumer outcomes, or to take a **tactical, reactive and fragmented** approach, compounding complexity in AEMO and participant IT landscapes, increasing implementation and operational expenses and reducing agility to respond to change.



### Security Concerns

The interconnectivity of the energy sector and digitisation of the grid is **increasing the surface area** of potential vulnerabilities that can be exploited, and the impact if security is breached.

**Community expectations** and **government directives and legislation** impose additional accountabilities and responsibilities for AEMO and industry to safeguard the critical services we collectively operate and protect our customers from impact.

The presence of multiple routes for managing identities and access, coupled with non-standard data exchange protocols and patterns, existing alongside diverse entry points to AEMO services collectively represent an **unacceptably vulnerable landscape**.



### Industry Pain Points

The existing landscape of IDAM, IDX and PC requires industry participants to interact through different access points, using different protocols, formats and standards, and causing an inconsistent, fragmented and duplicated user experience when accessing AEMO's systems.

This leads to higher ongoing operational costs for AEMO in activities needed to support the performance of its functions. This has a cascading effect of administrative burden for the participants.

For example: current IDAM current services are disparate, requiring users to retain multiple sets of credentials, and AEMO's existing data exchange mechanisms use inconsistent standards, protocols and formats.



For more information visit

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