

## Statement of Scope

The NEM Reform Program ('the Program') was established by AEMO to collaborate with energy industry participants to deliver many of the Energy Security Board's (ESB) post-2025 reforms along with various other energy market reforms impacting national electricity and gas markets across the east coast of Australia.<sup>1</sup> The Program is a large-scale, complex, industry-wide program that aims to address essential change in a world of expanding consumer choices, new technologies, and large-scale capital replacement as ageing thermal power stations leave the market.

## Background & Context

The ESB's post-2025 electricity market design set out a pathway to transition the National Electricity Market (NEM) into a modern energy system fit to meet the community's evolving wants and needs and move towards a net-zero future for Australia. The designs sought to address essential change as ageing coal-fired generators are retired, replaced by an expanding array of new technologies, including large-scale renewable energy generation and storage systems, complemented by rapid growth in consumer energy options, including rooftop solar.

National Cabinet approved the Post-2025 reform recommendations on 29 October 2021. In presenting its final advice to Energy Ministers, the ESB divided the work into four interrelated reform pathways:

- **Resource Adequacy Mechanisms (RAMS):** Investment in the right mix of resources (generation, storage and demand response) is in place prior to anticipated plant closures, and plant exit does not cause significant price or reliability shocks to consumers through the transition.
- **Essential System Services (ESS) and Ahead Mechanisms:** Resources and services are available when needed to manage the complexity of dispatch and to deliver a secure supply to customers.
- **Transmission and Access (TA):** The network is capable of meeting the future demands of the power system, including providing for appropriate investment signals to support investment that can deliver the energy transition at lower cost.
- **Integrating DER and Flexible Demand (DER & FD):** New opportunities are created for consumers about how they receive and use energy and are rewarded for doing so flexibly.

The four pathways are complemented by a **Data Strategy** for the NEM, developed by the ESB, which recognises that digitalisation and data are critical to enabling each of the reform pathways.

<sup>1</sup> AEMO NEM Reform Program. Website: <https://aemo.com.au/initiatives/major-programs/nem-reform-program>



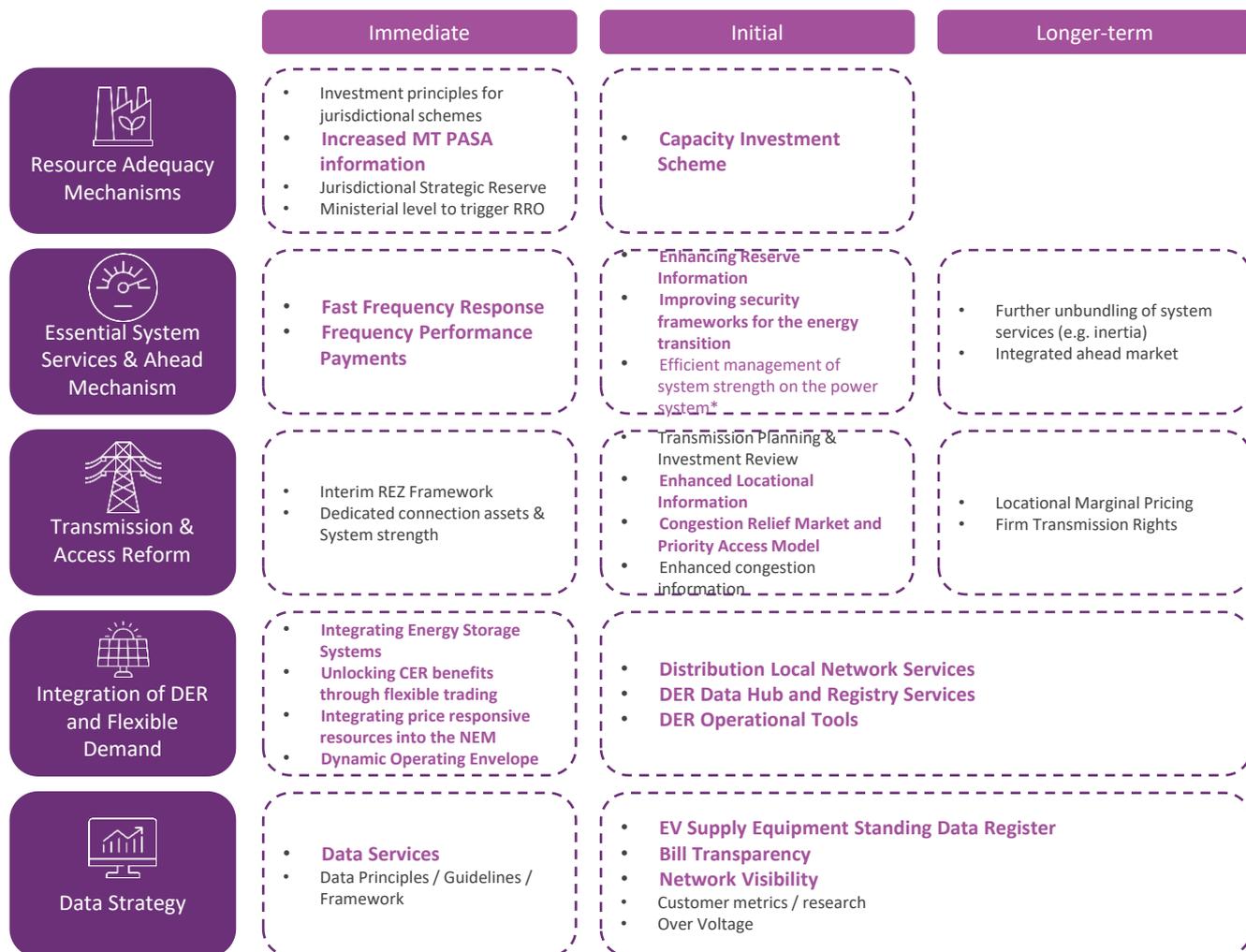
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With all the reforms in place, the NEM will<sup>2</sup>:

- allow consumers to benefit from rapidly changing technologies in our power system,
- unlock the value of flexible demand and distributed energy resources,
- work alongside government schemes which are delivering on their policy commitments including emissions reduction, and
- provide clear signals for timely and efficient investment to deliver reliable, secure, and affordable electricity for consumers.

The ESB had identified three different time horizons – immediate, initial and longer-term – to provide its view of when each recommended reform should be implemented as shown in Figure 1 below.

Figure 1. Summary of ESB Post-2025 market design recommendations



**Note:** Items in purple reflected in NEM Reform Program scope as further detailed below. \* Efficient management of system strength on the power system is a TNSP led initiative.

<sup>2</sup> Ibid.

### Post-2025 In-Scope Initiatives

One of the main enablers for many of the Post-2025 reforms is the development of supporting IT systems and business processes. An initial assessment of the impacts associated with the delivery of the reforms was prepared by AEMO and formed part of the ESB’s final advice to Ministers.

AEMO has since undertaken a series of planning activities in conjunction with the Reform Delivery Committee<sup>3</sup> (RDC) to better understand the scope and scale of the ESB’s reform initiatives that need to be delivered as part of the NEM Reform Program.

From these planning activities AEMO and the RDC determined those Post-2025 reform initiatives selected for inclusion in the NEM Reform Program to:

- have multi-participant implementation actions; and
- require investment in IT systems or business processes across AEMO and/or market participants.

From the full scope of the ESB's final recommendations, a number of reform initiatives were identified to be included in the NEM Reform Program.

Table 1 below provides a summary for each of the post-2025 initiatives.

The scope of the initiatives is current as of April 2024 and the publication of version 4 of the NEM Reform Implementation Roadmap.<sup>4</sup> As policy and or rule changes evolve throughout the life of the program the scope of the initiatives will be revised and updated.

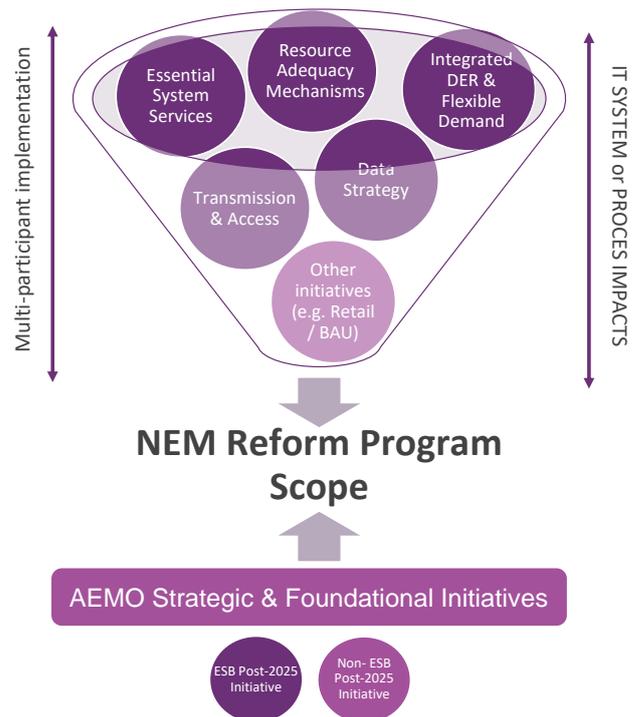
Table 1. Post-2025 In-Scope Initiatives

Pathway	Initiative Name	Description	Status
Resource Adequacy Mechanism	Increased MT PASA Information	<ul style="list-style-type: none"> <li>Established the reporting of a unit’s status through reason codes via Medium Term Projected Assessment of System Adequacy (MT PASA) and reporting of recall times via MT PASA when triggered through a reason code.</li> </ul>	Initiative Implemented
	Capacity Investment Scheme	<ul style="list-style-type: none"> <li>Establish a national underwriting framework to drive investment in new renewable dispatchable capacity.</li> </ul>	Under Policy Development - Tenders Underway
Essential System Services	Enhancing Reserve Information	<ul style="list-style-type: none"> <li>Increase transparency of energy availability in an operational timeframe through publication of state of charge, daily energy constraints and maximum storage capacity</li> </ul>	Final Determination – Now in execution
	Frequency Performance Payments	<ul style="list-style-type: none"> <li>To implement a new Frequency Performance Payment system for Regulation FCAS (to replace existing ‘Causer Pays’ system)</li> </ul>	Final Determination - Now in execution

<sup>3</sup> The RDC brings together a strategic group of representatives from across the energy sector, including representatives from the AEMC and AER, to facilitate deep and effective collaboration to develop the NEM Reform Implementation Roadmap that appropriately prioritises and sequences reform implementation considering interdependencies with a least cost whole-of-system intent – ultimately for the benefit of the consumer. Further information on the RDC is available [here](#).

<sup>4</sup> AEMO NEM Reform Implementation Roadmap. Available here: <https://aemo.com.au/en/initiatives/major-programs/nem-reform-implementation-roadmap>

Figure 2. Determining the NEM Reform Program





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Pathway	Initiative Name	Description	Status
		to which will provide incentives for participants to support frequency stability	
	Fast Frequency Response	<ul style="list-style-type: none"> <li>Establish two new market ancillary services – very fast raise and very fast lower – to operate alongside the existing contingency FCAS markets.</li> </ul>	Initiative Implemented
	Improving security frameworks for the energy transition	<ul style="list-style-type: none"> <li>Improvements to existing inertia, network support and control ancillary services (NSCAS) and non-market ancillary services (NMAS) frameworks as well as the directions process (transparency and compensation arrangements) to support procurement and scheduling of security services to support the energy transition.</li> </ul>	Final Determination - Now in execution
	Efficient management of system strength on the power system	<ul style="list-style-type: none"> <li>Evolve the framework to address the need for a more forward-looking, coordinated solution for the supply and demand of system strength in the NEM through key elements including TNSP led procurement of system strength, new access standards for relevant generators, loads and market network service providers, and enablement of a new charging mechanism providing for a price signal to connecting parties.</li> </ul>	Initiative Implemented
Transmission and Access	Enhanced Locational Information	<ul style="list-style-type: none"> <li>Establish a model to better manage transmission access risk by enhancing information provision and accessibility to participants on locational characteristics of the power system to better inform regulatory, operational and network investment decisions.</li> </ul>	Final ESB recommendations – AEMO to deliver as part of BAU activities
	Congestion Relief Market & Priority Access Model	<ul style="list-style-type: none"> <li>Establish a model to better manage transmission access risk by incentivising efficient dispatch outcomes, in addition to those produced by the existing energy market, through explicitly addressing congestion issues in an operational timeframe, and through the introduction of a mechanism by which generators are assigned a priority level in the energy market during the investment time-period (given effect in dispatch during operational timeframes).</li> </ul>	Under Policy Development
Integrating DER and Flexible Demand	Integrating Energy Storage Systems	<ul style="list-style-type: none"> <li>Establish an Integrated Resource Provider (IRP) registration category to better integrate and utilise energy storage and hybrid systems in the NEM and allow aggregators of small generators to provide ancillary services.</li> </ul>	Final Determination - Now in execution
	Unlocking Consumer Energy Resource (CER) benefits through flexible trading	<ul style="list-style-type: none"> <li>Enable end users to establish a private metering arrangement (PMA) for controllable resource(s) within their electrical installation, and to have these resources managed by a separate financially responsible Market Participant (FRMP).</li> <li>Establish a framework for 'minor energy flow' metering installations not currently considered in the NEM metering framework to reduce barriers further, create greater flexibility for the introduction of new technologies and enable access to retail competition for legacy connections in the NEM.</li> </ul>	Draft Determination
	Integrating price responsive resources in the NEM	<ul style="list-style-type: none"> <li>To establish an 'opt-in' framework through lowering barriers and providing incentives for flexible demand, aggregated portfolios of DER and small generation resources (between 5 MW and 30 MW) to either:                             <ul style="list-style-type: none"> <li>provide greater visibility to the market operator about intentions in the market, or</li> <li>to participate in dispatch of energy and ancillary services</li> </ul> </li> </ul>	Open Rule Change
	Dynamic Operating Envelopes	<ul style="list-style-type: none"> <li>Establish DOE to better manage congestion on the distribution network and allow for more flexibility in exporting through various key reforms including:                             <ul style="list-style-type: none"> <li>Establishing new connection agreements with customers</li> <li>Development of capacity allocation principles</li> <li>Establishing new obligations on the retailer / aggregator to operate DER within these limits, where they are operating DER on behalf of customers and</li> <li>Creating new standards for interoperability and cyber security</li> </ul> </li> </ul>	Concept/Trial
	Distribution Local Network Services	<ul style="list-style-type: none"> <li>To identify ways to make it easier for DER aggregators to trade local network support services with DNSPs/Distribution System Operators (DSOs), through greater visibility of local network.</li> </ul>	Concept/Trial



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Pathway	Initiative Name	Description	Status
		constraints aligning the definitions of local services and how they are traded between regions.	
	Turn-up Services	<ul style="list-style-type: none"> <li>Increase the capability and capacity of load to respond to low or negative price signals during times of abundant variable renewable energy, which is correlated to periods of minimum system load</li> </ul>	Removed from the scope of the NEM Reform Program (March 2023)
	DER Data Hub and Registry Services	<ul style="list-style-type: none"> <li>Establish a DER Data Hub to provide efficient and scalable data exchange and registry services for DER between industry actors and potential augmentation of DER Register to enable more efficient and permission-based sharing and access to information.</li> </ul>	Concept/Trial
	DER Operational Tools	<ul style="list-style-type: none"> <li>To identify and develop, in collaboration with DNSPs, new DER operational tools that may be required by each party, which can work together to maintain efficient and secure power system operations at times when up to 100% of system load can be met with DER.</li> </ul>	Concept
Data Strategy	Data Services	<ul style="list-style-type: none"> <li>To establish a new Data Services unit within AEMO to facilitate safe, timely and appropriate access to and public-good benefits from data sets held by AEMO and other market bodies, supporting improved policy, planning and research.</li> </ul>	Under Policy Development
	EV Supply Equipment Standing Data Register	<ul style="list-style-type: none"> <li>Ensure that agencies and market participants have sufficient visibility of emerging electric vehicle supply equipment (EVSE) for effective planning and management of the system through extension of the DER Register data collection and reporting framework to require DNSPs to collect and provide specified standing data for all hard-wired EVSE with a connection of 15A or greater.</li> </ul>	Under Policy Development
	Bill Transparency	<ul style="list-style-type: none"> <li>Efficient arrangements to provide ongoing transparency of consumer bills and the impacts of different services and circumstances, to support better consumer protections and understanding of consumer needs in the market transition and streamline current inefficient retail reporting.</li> </ul>	Under Policy Development
	Network Visibility	<ul style="list-style-type: none"> <li>Optimise benefits from DER and network assets for all stakeholders through access to datasets providing clear visibility of network capacity/constraints, DER and network performance, and related risks and opportunities.</li> </ul>	Under Policy Development

In addition to the reform initiatives, AEMO has identified a subset of enabling initiatives. Each of these initiatives represents either a:

- **Foundational** investment in an AEMO legacy system to deliver an uplift to base capability on which reforms are dependent; or
- **Strategic** investment where system uplift is required at some time in the future and AEMO sees the opportunity for this life-cycle type investment to be brought forward and delivered in the same timeframes as the reforms for efficiency purposes.

The following table provides a summary of each foundational or strategic initiative considered within the scope of the NEM Reform Program.

Table 2. AEMO Foundational / Strategic Initiatives

Pathway	Initiative Name	Description
Foundational	Identity Access Management	<ul style="list-style-type: none"> <li>A unified mechanism to authenticate participant users and applications when accessing AEMO services enabling a single pane of glass for participants accessing AEMO applications while consolidating and improving overall cyber security controls.</li> </ul>
	Industry Data exchange	<ul style="list-style-type: none"> <li>Unified access to AEMO services across all markets using modern authentication and communication protocols providing for consolidation of data exchanges into a single industry-wide mechanism across wholesale and retail applications, lowering barriers to entry and reducing overall costs.</li> </ul>



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Pathway	Initiative Name	Description
	SCADA Lite	<ul style="list-style-type: none"> <li>A low-cost mechanism to support telemetry services reducing barriers to entry for smaller generators and demand side resources and providing greater visibility to AEMO and market participants.</li> </ul>
Strategic	Portal Consolidation	<ul style="list-style-type: none"> <li>A single pane of glass user experience for participants accessing all AEMO browser-based services.</li> </ul>
	FRC Target State <sup>5</sup>	<ul style="list-style-type: none"> <li>Implement a consolidated Asset and Participant Relationship Management system (APRM); that enables unification of services onto a shared platform and simplification of Participants' and AEMO processes.</li> <li>An internal master data management platform hosting information about power system asset data (e.g., NMI standing data, DER devices) used by AEMO market systems providing participants with a single source of truth and data quality management.</li> </ul>
	Dispatch Target State	
	Bids / Offers Target State	<ul style="list-style-type: none"> <li>A technology uplift of AEMO backend market platform services to replace legacy technology. In the case of bids/offers this could leverage 5MS deliverables.</li> </ul>
Constraints Target State		

## Broader Electricity & Gas In-Scope Initiatives

Further to those Post-205 initiatives identified above, the Program also provides for the implementation of a broader suite of electricity and gas related reform initiatives that may arise through such avenues as the AEMC's rules consultation process or government policy decisions (e.g., East Coast Gas Supply Adequacy and Reliability reforms). AEMO engage and continuously monitor the progress of these reforms through to a final rules or policy determination at which time a reform moves into a detailed planning and execution phase, to be progressed by the Program.

## Out-of-Scope Initiatives

In certain instances, a reform initiative may be delivered separately as an independent project or via one of AEMO's other programs, including the Operational Technology Roadmap (OTR) program. These reforms may have impacts for how other reform initiatives are to be implemented. The NEM Reform Program work closely with the broader AEMO teams responsible for such Programs or projects to understand their impacts and any potential opportunities to drive efficiencies through implementation. These reform initiatives (e.g., ST PASA replacement and methodology update) are captured on the Roadmap, however are not included in the scope of the NEM Reform Program.

## NEM Reform Program: Delivery Scope

AEMO has delivered many large reform-driven programs of work. However, the NEM Reform Program represents the most comprehensive reform package sought to be implemented since the NEM's inception in 1998. As a result, it needs careful planning and high levels of industry engagement to be successful.

The key principles underpinning delivery of the NEM Reform Program are to:

- Work collaboratively with industry:** While AEMO is ultimately responsible for delivering the NEM Reform Program, it will be supported by comprehensive engagement and collaboration with industry. In particular, the NEM Reform Program aims to provide industry with a clear forward view of the periodic deployments of capability aligned with the ESB's reform timelines via the NEM Reform Implementation Roadmap. This will

<sup>5</sup> As of April 2024, AEMO has rolled its Consolidated Master Data Repository initiative into the wider FRC Target State initiative.



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assist industry with their own planning and delivery activities to be ready for each reform as it is operationalised.

- **Deliver effective solutions:** The NEM Reform Program will work closely with ESB and industry to ensure the solutions that are developed meet the ESB’s reform objectives and are aligned with AEMO’s target state architecture.<sup>6</sup>
- **Deliver as efficiently as possible:** The NEM Reform program will be structured to deliver as efficiently as possible leveraging opportunities to bundle, sequence and prioritise projects within the Program, and where possible identify and drive costs through solution design and implementation.

The NEM Reform Program will take a ‘One Program’ approach that provides for central governance and a structured methodology to assessing change impacts to AEMO, industry and stakeholders over the life of the Program. Further the ‘One Program’ approach ensures a level of consistency in delivery across all initiatives from their conception through to completion while still allowing for tailored implementation at an individual initiative level.

The implementation of IT systems and processes will form a significant component of the NEM Reform Program. However, the activities (and therefore resources) to successfully bring the individual initiatives into live operation is inevitably much broader as shown in Table 3.

These activities shown below are to be supported by a dedicated program structure and program management function. These have been developed in alignment with AEMO’s Enterprise Portfolio Office (EPO). The EPO will provide standards, methodologies, processes and tools mandated across the enterprise, and these will be used by the NEM Reform Program.

The delivery scope for the NEM Reform Program excludes activities relating to the development of policy and/or rules or related change processes, market design, funding and cost recovery. These are managed outside the direct responsibility of the NEM Reform Program but are identified as dependencies with clear lines of communication to ensure a co-ordinated approach.

Further, the delivery scope is not intended to cover the implementation of changes (e.g., system, process or guideline related) by industry participants beyond those activities identified above, these are the responsibility of individual participants.

Table 3. NEM Reform Program Delivery Scope

Function	Description	Included Activities
<b>Solution Assurance &amp; Design</b>	Provides the overarching alignment of business and technology strategic outcomes through roadmaps, architectures and transformational change impact management. Also provides the sequencing and integrated release planning of design and delivery; Supports the program in the procurement and ongoing management of vendors including performance and execution to contract.	<ul style="list-style-type: none"> <li>• Technical Architecture</li> <li>• Business Architecture</li> <li>• Product Release Planning &amp; Integrated Design</li> <li>• Contract Management / Performance</li> <li>• Vendor Engagement / Management</li> </ul>
<b>Delivery</b>	Delivery of all business and technology changes as required to support the Post-2025 Reforms and in-scope projects; Supports the delivery streams in the delivery of quality outcomes and the alignment to program and AEMO standards and practices through testing and verification.	<ul style="list-style-type: none"> <li>• Requirements Development &amp; Design</li> <li>• Business Process, Procedure and Work Instruction Development</li> <li>• Delivery Management (Business and Technology)</li> </ul>

<sup>6</sup> AEMO has commenced detailed work to articulate its conceptual target state architecture. While this work is broader than the NEM Reform Program, it is critical that what the NEM Reform Program designs and delivers is in alignment with this target state architecture as the Program will be a key contributor towards achieving the desired future state.



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Function	Description	Included Activities
		<ul style="list-style-type: none"> <li>• Testing (Integration, E2E, Performance and UAT)</li> <li>• Industry Test / Market Trials</li> <li>• Environment Management</li> </ul>
<b>AEMO Operational Capability</b>	Management of the change implementation within AEMO, including internal stakeholder engagement and communications, organisational and staff transition, business readiness, and staff training and coaching.	<ul style="list-style-type: none"> <li>• Internal stakeholder management</li> <li>• Internal (AEMO) communications</li> <li>• AEMO organisation and staff transition</li> <li>• Business (AEMO) readiness</li> <li>• Training and coaching</li> </ul>
<b>External Stakeholder Engagement</b>	Centrally lead and coordinate all communications and engagement with industry, government, media, and other external stakeholders to build awareness and understanding, and co-design, implement and embed the NEM Reform Program.	<ul style="list-style-type: none"> <li>• Forums and working group facilitation</li> <li>• External stakeholder and industry support and engagement</li> <li>• External stakeholder and industry communications</li> </ul>
<b>Industry Readiness</b>	Facilitation of the change implementation with industry including, representing the NEM Reform Program with industry stakeholders, and leading and coordinating all industry readiness, transition, and participant training activities.	<ul style="list-style-type: none"> <li>• Program advocacy and industry engagement</li> <li>• Industry transition planning and co-ordination</li> <li>• Readiness planning and coordination</li> <li>• Participant training</li> </ul>