AEMO
AUSTRALIAN ENERGY MARKET OPERATOR

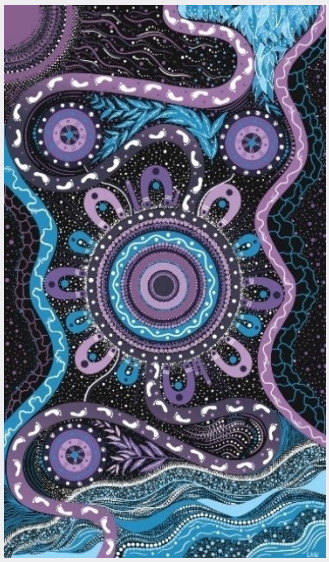
Engineering Roadmap to 100% Renewables

FY2026 Priority Actions

Close-out Report

September 2026

A report on the National Electricity Market and the South West Interconnected System Engineering Roadmap Priority Actions FY2026



We acknowledge the Traditional Custodians of the land, seas and waters across Australia. We honour the wisdom of Aboriginal and Torres Strait Islander Elders past and present and embrace future generations.

We acknowledge that, wherever we work, we do so on Aboriginal and Torres Strait Islander lands. We pay respect to the world's oldest continuing culture and First Nations peoples' deep and continuing connection to Country; and hope that our work can benefit both people and Country.

AEMO is proud to have launched its Innovate Reconciliation Action Plan (RAP) in June 2026. Pictured left and featuring on the cover of the Innovate RAP is Wiradjuri artist Lani Balzan's 'Journey of unity: AEMO's Reconciliation Path', a visual representation of our ongoing journey towards reconciliation – a collaborative endeavour that honours First Nations cultures, fosters mutual understanding, and paves the way for a brighter, more inclusive future.

Important notice

Purpose

This report summarises progress and outcomes from the Engineering Roadmap Priority Actions delivered in the 2025-26 financial year (FY2026) for the National Electricity Market (NEM) and the South West Interconnected System (SWIS). It provides a close-out of the FY2026 Priority Actions, including completion status, key achievements, and the contribution of each action to strengthening operational capability for secure and reliable operation at times of high renewable and inverter-based resource contribution.

This report continues AEMO's *Engineering Roadmap to 100% Renewables* work. Unless otherwise indicated, this report is based on information available to AEMO as at 30 June 2026.

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Version control

Version	Release date	Changes
#1	11/09/2026	First publication

Executive summary

AEMO's *Engineering Roadmap to 100% Renewables* provides a framework for preparing Australia's power systems for secure and reliable operation at increasing levels of renewable and inverter-based generation. Since 2023, the Priority Actions program has progressed key elements of this roadmap across the National Electricity Market (NEM) and the South West Interconnected System (SWIS), focusing on priority engineering challenges.

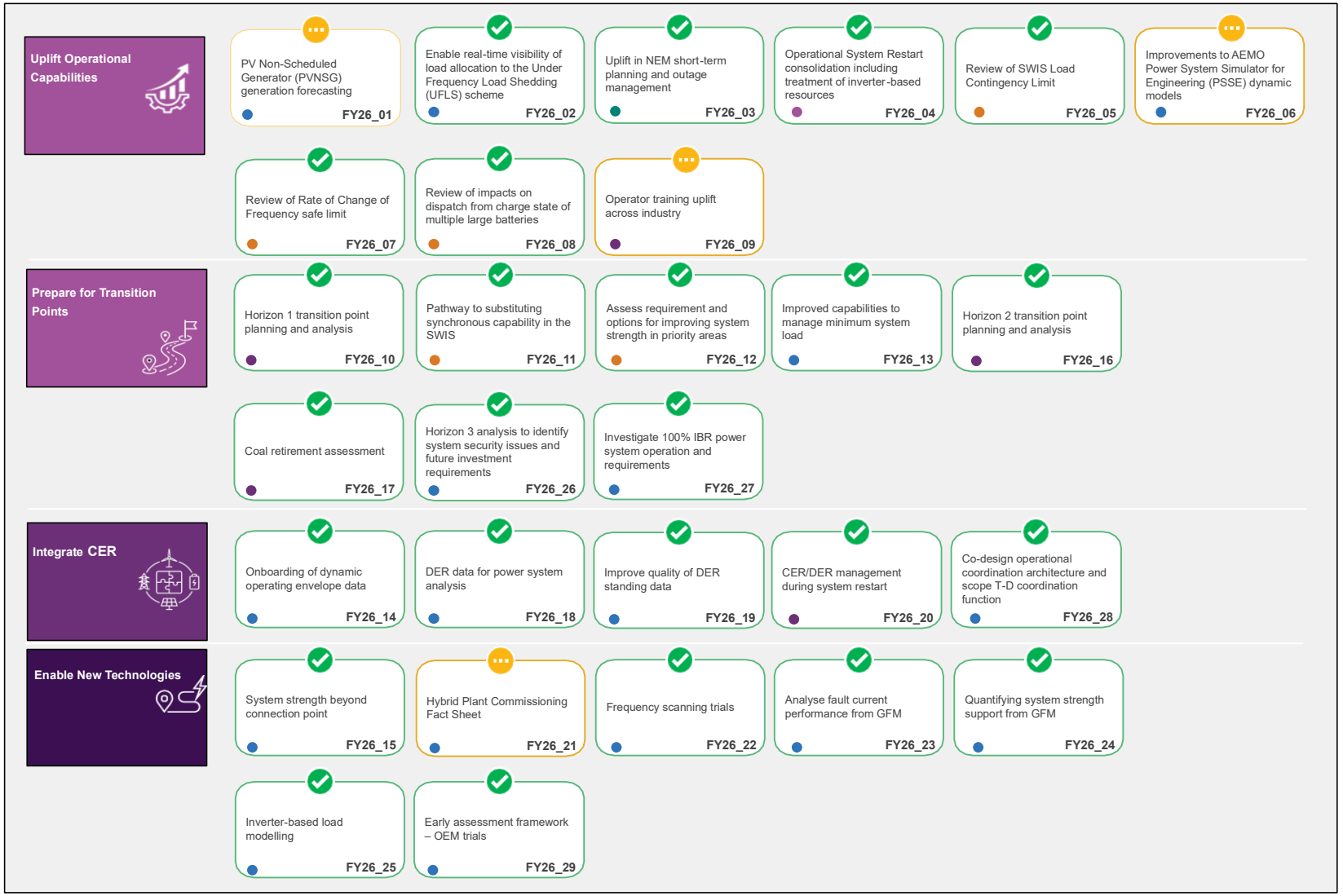
In FY2026, efforts focused on 29 Priority Actions, of which 25 were fully delivered and four were partially completed. The publication of this close-out report provides consumers and industry stakeholders with an overview of the progress made, outcomes delivered, remaining capability gaps, and areas requiring further work as Australia's power systems continue to evolve. The FY2026 Priority Actions delivered practical outcomes across four areas:

- **Uplifting operational capabilities** – new and improved tools, data streams and operating processes strengthened the ability to identify, forecast and manage changing system conditions, including minimum system load (MSL), planned outages and emerging operational risks. These improvements contribute to the continued secure and reliable operation of the power system as the generation mix changes.
- **Preparing for Transition Points** – regional transition planning, coal retirement assessments, system restart work and system strength studies provided greater visibility of priority risks, readiness requirements and potential mitigation pathways ahead of key system transition points. These findings support more coordinated planning across industry and helps stakeholders understand where further action may be required.
- **Integrating consumer energy resources (CER) and distributed energy resources (DER)** – work on DER standing data, disturbance response data, flexible export limit data and transmission-distribution coordination improved understanding of how distributed resources interact with the broader power system, particularly during low demand, disturbance and system restart conditions in the SWIS. This work supports the continued integration of consumer-owned technologies while helping manage emerging system security risks.
- **Enabling new technologies** – connection and commissioning guidance, model assessment processes and analytical methods for emerging technologies will reduce uncertainty and support more informed investment and operational decisions. Analysis of inverter-based loads (IBLs) has confirmed the need for fast post-fault recovery and informed proposed access standards under the Improving the NEM Access Standards – Package 2 rule change process. The Early Assessment Framework is supporting early engagement with original equipment manufacturers (OEMs) seeking connection to the grid. The framework enables streamlined generator connection assessments using pre-assessed models, supporting a more efficient and consistent connection processes.

Together, these outcomes moved the Engineering Roadmap from capability definition toward implementation. The report seeks to identify areas where further work is required, setting the foundation for AEMO's forward work plans. From FY2027, Engineering Roadmap reporting for the NEM will be integrated into the annual *Transition Plan for System Security* (TPSS), while SWIS engineering and transition-planning activities will continue through a separate approach under applicable Wholesale Electricity Market Rules (WEM Rules) and Electricity System and Market Rules (ESM Rules) and governance arrangements.

The 2022 *Engineering Roadmap to 100% Renewables* report will remain the central reference for the capabilities required to operate a future NEM power system, while the 2024 SWIS *Engineering Roadmap Report* provides the equivalent reference for the SWIS.

Figure 1 FY2026 Priority Action status



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1 Evolution of the Engineering Roadmap

In 2019, AEMO established the Engineering Framework[1] to identify potential capability gaps within the evolving energy landscape. This framework informed the subsequent *Engineering Roadmap to 100% Renewables* and annual Priority Actions reports, which outlined the capabilities required for the NEM to operate securely and reliably with increased renewable contributions, and steps taken towards achieving these capabilities. The groundwork also extended to the development of an equivalent SWIS Engineering Roadmap in 2024[2].

In 2024, the Australian Energy Market Commission (AEMC) introduced the Improving Security Frameworks (ISF) rule change, including a requirement for AEMO to publish the annual TPSS. The TPSS details how AEMO is planning to maintain system security throughout the NEM's transition to a low-emissions power system, as well as work AEMO is undertaking to improve the understanding of what is needed to maintain power system security in a low- or zero-emissions power system. This reflects a shift toward an integrated, forward-thinking method for identifying, evaluating, and addressing system security risks as the energy generation mix evolves.

In 2025, following stakeholder feedback, AEMO committed to "merge Engineering Roadmap reporting into the *Transition Plan for System Security* from 2026 to provide an integrated view of the future of power system security and the knowledge and capabilities required to support it"[3]. This integration marked a shift from standalone annual Engineering Roadmap Priority Actions reports to a more systematic and continuous approach to planning and execution. It fosters improved alignment between system requirements, engineering solutions, and implementation strategies, while enhancing transparency and clarity for stakeholders regarding AEMO's response to system security challenges.

Through this structured approach, the TPSS offers a clearer connection for the NEM, between prevailing system conditions, requisite engineering competencies, and the actions and investments essential for sustaining a secure power system during the transition.

For Western Australia, AEMO developed an equivalent Engineering Roadmap to identify and address system security challenges specific to the SWIS. While this has been delivered as a standalone framework to date, it reflects a similar focus on identifying capability gaps and informing targeted actions.

Over time, the SWIS approach is expected to evolve into a more integrated, SWIS-specific transition-planning model that strengthens the links between system conditions, engineering requirements and implementation planning. While it shares similar objectives with the NEM TPSS, it will remain a separate framework reflecting the SWIS operating environment and the applicable WEM Rules and ESM Rules and governance arrangements.

The Engineering Roadmap will remain a central reference for the engineering activities needed to support secure NEM outcomes. These activities will align with system transition points, emerging risks and required capabilities as part of AEMO's annual TPSS.

[1] See https://www.aemo.com.au/-/media/files/initiatives/engineering-framework/2024/swis-engineering-roadmap.pdf?rev=2054156316a7468e941d7a21f4014827&sc_lang=en.

[2] 2024 SWIS Engineering Roadmap, at https://www.aemo.com.au/-/media/files/initiatives/engineering-framework/2024/swis-engineering-roadmap.pdf?rev=2054156316a7468e941d7a21f4014827&sc_lang=en.

[3] 2025 TPSS, at https://www.aemo.com.au/-/media/files/major-publications/tpss/2025-transition-plan-for-system-security.pdf?rev=c418ef08855440f89b93ea5f07fe895f&sc_lang=en.

Figure 2 Evolution of the Engineering Roadmap

From engineering foundations to integrated transition planning

Established the foundations

2019 Integrating Utility-scale Renewables and Distributed Energy Resources in the SWIS

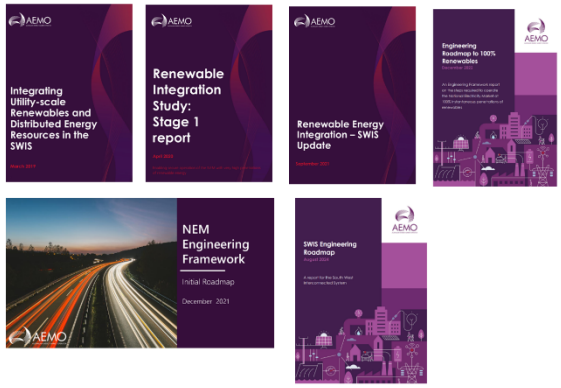
2020 Renewable Integration Study: Stage 1 Report (NEM)

2021 NEM Engineering Framework: Initial Roadmap

2021 Renewable Energy Integration – SWIS Update

2022 Engineering Roadmap to 100% Renewables (NEM)

2024 SWIS Engineering Roadmap



Delivered priority actions and Transition Planning

2022 Engineering Roadmap: FY2023 Priority Actions Report (NEM)

2023 Engineering Roadmap: FY2024 Priority Actions Report (NEM)

2024 Engineering Roadmap: FY2025 Priority Actions Report (NEM)

2024 Transition Plan for System Security (NEM)

2025 Engineering Roadmap: FY2026 Priority Actions Report (NEM and SWIS)

2025 Transition Plan for System Security (NEM)

2026 Engineering Roadmap to 100% Renewables: FY2026 Priority Actions Close-out Report (NEM and SWIS)

Integrated transition planning

2026 NEM Transition Plan for System Security December 2026

Including 3-year Engineering Roadmap workplans

2027 NEM Transition Plan for System Security December 2027

Including updated 3-year Eng Roadmap workplans

2027 Future SWIS reports Timing and scope TBC

From late 2026, the Engineering Roadmap reporting will be integrated into Transition Planning for the NEM, with workplans refreshed on a rolling three-year horizon.

2 Progress status FY2026 Priority Actions

This section details the status as of 30 June 2026 of the committed FY2026 Priority Actions. Of the 29 actions, 25 were completed and four were partially completed.

Table 1 FY2026 Completion Statement

Action ID	Action name	Description	Scope	Committed output	Completion statement
FY26_01	PV Non-Scheduled Generator (PVNSG) generation forecasting	Development of Proof of Concept generation forecasting model for 100 kilowatts (kW) to 30 megawatts (MW) PVNSG installations, using the same spatial and temporal resolution as AEMO's Distributed Renewable Energy Forecasting System (DREFS), and using existing or easily obtainable data sources. This includes addressing (or identifying options to address) the current issues with managing distribution constraints for distribution connected PVNSG and semi-scheduled generation.	NEM delivery with SWIS relevance	Proof of concept of PVNSG generation forecasting model, including data streams, established on AEMO's data science platform. Productionisation is proposed as part of stage 2 of Project Fusion.	**PARTIALLY COMPLETE:** AEMO has completed two of the three planned phases of this action. Phase one identified and consolidated data sources to create a list of PVNSG units and their relevant metadata and made this data available for internal use. Phase two developed a Proof of Concept model to estimate near real-time (five-minute) PVNSG generation using available sample data, providing an initial capability to quantify generation from this segment and improve visibility for analysis. The use of SCADA data was considered, but only a limited number of sites currently provide this data to AEMO. Phase three defined how a forecasting model could be developed but has not yet been implemented due to competing priorities. Improved visibility of distribution-connected PVNSG generation also provides an evidence base to better understand the interaction between PVNSG output and distribution network constraints, helping identify potential approaches to improve the management of distribution-connected PVNSG and semi-scheduled generation. While a forecasting capability has not yet been implemented, the foundations established through this work support future development of operational tools to address these challenges. Although delivered for the NEM, the data architecture, asset identification processes and forecasting methodologies are expected to be transferable to the SWIS, where increasing levels of distributed generation are creating similar needs for improved visibility and forecasting capability. The work completed[4] to date establishes a structured dataset and an initial estimation capability, improving understanding of PVNSG behaviour and supporting future forecasting development. Future work will focus on expanding data sources and increasing sample coverage to improve the accuracy of generation estimates and support operational and planning activities.

[4] See https://www.aemo.com.au/-/media/files/initiatives/operations-technology-roadmap/executive-summary-report-for-the-otr.pdf.

Action ID	Action name	Description	Scope	Committed output	Completion statement
FY26_ 02	Uplift capabilities to enable real-time visibility of load allocation to the Under Frequency Load Shedding (UFLS) scheme	Establish pathway for AEMO real-time visibility of load on UFLS relays and update schedules and procedures to manage dynamic capability.	NEM delivery with SWIS relevance	Progress uplift on AEMO's UFLS monitoring systems so that it is capable of displaying real-time visibility across all mainland NEM regions, where facilitated by network service provider (NSP) inputs.	**COMPLETE:** Real-time visibility of UFLS load allocation has been implemented where NSP inputs are available. Victoria is operational, with frequency blocks and associated loads displayed on the Energy Management System (EMS) dashboard. South Australia has SCADA data available and a dashboard developed, establishing a second jurisdiction with core capability in place. This work also supports AEMO's ongoing obligations under the National Electricity Rules (NER) to assess and review emergency frequency control schemes, including UFLS, over frequency generation shedding (OFGS) and other relevant schemes, as part of maintaining power system security and managing power system risks. New South Wales and Queensland remain dependent on NSP funding and a clearer system security need, to be informed by the forthcoming AEMO UFLS Adequacy Review.
FY26_03	Uplift in NEM short-term planning and outage management	Uplift in short-term planning and outage management to facilitate a grid with increasing numbers of new connections so that AEMO's procedures, processes and tools transition as the network evolves.	NEM only	Development and implementation of a regular review process to review and ensure procedures/processes/ tools are kept fit for purpose as changes occur across the NEM network. Updates to control scheme, regional and outage management procedures. Technical input into development of renewable energy zones (REZs). Adjustments to operational tools and processes. Finalisation of Congestion Information Resource (CIR) Guidelines consultation.	**COMPLETE**: AEMO has delivered an uplift to short-term planning and outage management through ongoing updates to operational processes, procedures, and tools to support a rapidly evolving NEM with increasing renewable contribution and new connections. A regular review process has been implemented to ensure operational practices remain fit for purpose as network conditions change. Updates were made across control schemes, regional procedures, and outage management practices, including incorporation of learnings from Project Energy Connect testing and preparation for upcoming network energisation activities. Operational input was also provided into REZ development to ensure planning outcomes consider system operability. This satisfies the FY26 objective by strengthening AEMO's ability to manage outages and system security under changing system conditions. The uplift in NEM short-term planning and outage management was particularly important given the increasing volume of new generation connections and GW-scale commissioning activity over the past year, which has added complexity to outage coordination and operational planning. Enhancements to operational tools, MSL and reserve management processes, control room practices, targeted training, and improved coordination of commissioning activities have supported more consistent, secure and efficient system operations across the NEM.
FY26_04	Operational System Restart consolidation including treatment of	Revision of current System Restart pathways and gap analysis. Note that the pathways are specific to the SWIS and	SWIS delivery with NEM relevance	Updated System Restart Plan (required under the ESM Rules) incorporating both increased speed of restoration and	**COMPLETE:** Operational consolidation studies have been completed across all three System Restart pathways using updated system data and forecasts. Risks relating to limited generation availability, particularly within the Kwinana pathway, have been identified to inform the need for Restoration Support Services.

Action ID	Action name	Description	Scope	Committed output	Completion statement
	inverter-based resources (IBR)	the approach is impacted by the SWIS ESM Rules.		strategies for managing grid-following (GFL) IBR.	An interim approach for reconnecting GFL IBR during System Restart has been defined in alignment with Limit Advice 27[5], which establishes minimum synchronous unit requirements to maintain system strength and reactive power capability during restoration. This approach may also provide an initial threshold for IBR reconnection during System Restart in the NEM, pending detailed electromagnetic transient modelling. Further investigation will consider how grid-forming (GFM) IBR could support System Restart. A SWIS System Restart Gap Register has been established, consolidating identified risks and gaps across planning, operations, modelling, procurement, and non-technical areas, with defined actions and ownership in place. This satisfies the FY26 objective by updating System Restart pathways, identifying operational and system risks, and establishing a structured framework to manage gaps and support ongoing improvements. Further refinement of IBR requirements and post-coal retirement scenarios will be progressed as part of future work.
FY26_ 05	Review of SWIS Load Contingency Limit	Expansion of SWIS Frequency control framework to support dynamic optimisation of largest load contingencies as a result of new large batteries in the SWIS.	SWIS only	Revised ESM Procedures for Essential System Service (ESS) Quantities and Dispatch Algorithm Formulation and operating processes.	**COMPLETE:** The SWIS Load Contingency Limit framework has been updated through revised ESM Procedures for ESS Quantities and Dispatch Algorithm Formulation[6]. These changes replace static assumptions with a Dynamic Frequency Control Model that determines the largest credible load contingency based on real-time system conditions, including system load, inertia, DER, and available response capability. The WEM dispatch engine (WEMDE) has been updated to operationalise this approach and now dynamically calculates the largest credible load contingency and co-optimises Contingency Reserve services in real time. This satisfies the FY26 objective by enabling a more adaptive and efficient frequency control framework, reducing conservative assumptions and procurement of unnecessary Contingency Lower service, while supporting increased participation of battery storage and other fast-response technologies in maintaining system security.
FY26_06	Improvements to AEMO Power System Simulator for Engineering	Converting PSS®E dynamic models to enable future versions of the PSS®E software	NEM delivery with SWIS relevance	Updated PSS®E models to newer version. This improvement will save time and efficiency of AEMO operations and future version upgrades.	**PARTIALLY COMPLETE:** AEMO has substantially completed the upgrade of its PSS®E dynamic models to a newer software version. To date, 94% of models have been converted and 53% have completed benchmarking. Benchmarking has commenced for most of the remaining converted models; however, unresolved errors prevented completion by the end of FY26.

[5] See https://www.aemo.com.au/-/media/files/electricity/wem/congestion-information/western-power-non-thermal-limit-advice-27---v2-0.pdf?rev=6aa8e15e86fe4ded81e16a4176c00214&sc_lang=en.

[6] See https://www.aemo.com.au/-/media/files/electricity/wem/procedures/2025/wem-procedure-ess-quantities.pdf?rev=4a0e92872838433db54fb66a125d61b0&sc_lang=en&hash=B501A80BFECE21E33B50890C7D79378A.

Action ID	Action name	Description	Scope	Committed output	Completion statement
	(PSS®E) dynamic models				The upgrade improves modelling efficiency and strengthens AEMO's capability to analyse increasingly complex power system conditions associated with the energy transition. The processes, capability uplift and lessons learned provide a reusable approach for the SWIS, which will need to undertake a similar model conversion within the next year. This action partially satisfies the FY26 objective by improving modelling efficiency, enabling more timely studies, and supporting future model and software upgrades.
FY26_07	Review of Rate of Change of Frequency (RoCoF) safe limit	Changes to SWIS Frequency Operating Standards to relax the RoCoF Safe Limit.	SWIS only		**COMPLETE:** The SWIS Frequency Operating Standards have been updated to relax the RoCoF safe limit, informed by analysis and recommendations developed through the Essential System Services Framework Review and its supporting Working Group[7]. The review assessed whether ESS requirements remain fit for purpose under evolving system conditions and identified opportunities to improve efficiency while maintaining system security. Recommendations to amend the RoCoF Safe Limit were progressed through the formal rule change process and gazetted in December 2025, with implementation in February 2026. This satisfies the FY26 objective by enabling a more flexible frequency framework in the SWIS, reducing reliance on conservative limits and supporting more efficient dispatch outcomes while maintaining system security as IBR increase.
FY26_08	Review of impacts on dispatch from charge state of multiple large batteries	A study into the incentives and obligations for storage participating in the WEM, to inform revision to assumptions for WEMDE and the SWIS operational intervention protocol, and to identify any risks associated with existing frameworks (including the Reserve Capacity Mechanism) as storage becomes a	SWIS only	Published report following consultation.	**COMPLETE:** A review of the impact of large-scale battery state of charge on dispatch outcomes has been completed, supported by analysis of incentives and obligations for storage participation in the WEM. The study assessed how existing frameworks, including WEMDE assumptions and the Reserve Capacity Mechanism, interact with increasing volumes of storage and identified associated operational and market risks. Recommendations from the review working group[8] were presented to the Market Advisory Committee in May 2026, following stakeholder consultation and publication of the report. At a high level, these recommendations focus on improving visibility and predictability of battery state of charge in dispatch, strengthening alignment between market incentives and system security outcomes, and introducing targeted intervention mechanisms for managing state of charge during extreme system conditions.

[7] See https://www.wa.gov.au/government/document-collections/essential-system-services-framework-review-working-group.

[8] See https://www.wa.gov.au/government/document-collections/capability-class-2-technologies-review-working-group.

Action ID	Action name	Description	Scope	Committed output	Completion statement
		material quantity of SWIS capacity.			This satisfies the FY26 objective by identifying gaps in how storage is represented in dispatch and system operations, and by informing enhancements to AEMO SWIS intervention frameworks. This includes the likely introduction of new intervention powers to manage battery state of charge where required to maintain system security in the SWIS.
FY26_09	Operator training uplift across industry	Collaborate with NSPs and participants to develop standardised, industry accredited operator training modules for an increasingly decentralised and renewable power system.	NEM and SWIS delivery	Provide access to and continued development of industry accredited power system operator training framework to support transmission NSP (TNSP), distribution NSP (DNSP) and renewable control room operations.	**PARTIALLY COMPLETE:** A revised and simplified approach to industry operator training uplift has been delivered, including re-engagement with RelyOn Nutec in March 2026 and progression of a streamlined contractual framework to support delivery and ongoing development work. The training modules will be applicable to NEM and SWIS participants. Stage 1 outcomes include establishment of arrangements to host and deliver existing training modules via an online platform with adaptive learning capability, enabling enrolment, tracking, and completion of training across participants. The work completed to date has established the foundations for a scalable and standardised operator training framework for TNSPs, DNSPs, renewable control room operators, and AEMO operational staff across the NEM and SWIS. Developed in collaboration with NSPs (NEM and SWIS) and other industry stakeholders, the framework incorporates feedback gathered during the pilot phase to ensure alignment with operational training needs. The work establishes the transition of the Power System Operator Training (PSOT) framework into production, including hosting arrangements, publication of pilot modules, and a contractual model to support ongoing development and expansion. This will create the platform for future delivery of standardised operator training across industry participants as additional modules and capabilities are rolled out.
FY26_10	Horizon 1 transition point planning and analysis	Identify the system risks related to Horizon 1 transition points in all regions across the NEM and the SWIS and propose possible solutions to mitigate them.	NEM and SWIS delivery	Develop regional transition timelines for Horizon 1, identifying and preparing for transition points and key activities that need to occur, and publish including as part of the TPSS or other AEMO reports,	**COMPLETE:** Horizon 1 transition point planning and analysis has been progressed through the TPSS[9], which is published annually and outlines AEMO's approach to identifying transition points, associated system risks, and the proposed solutions being used to maintain system security across the NEM. During FY26, two Statements of Need were published to support delivery of proposed solutions for Type 1 Transitional Services: Grid Reference[10] and Minimum System Load[11] trough filling. Project streams have also been initiated to continue reducing minimum

[9] See https://www.aemo.com.au/-/media/files/major-publications/tpss/2025-transition-plan-for-system-security.pdf?rev=c418ef08855440f89b93ea5f07fe895f&sc_lang=en.

[10] See https://www.aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/transition-planning/sa-transitional-services-for-grid-reference-son.pdf?rev=ced5c202e755488998b8a6b07df63adc&sc_lang=en.

[11] See https://www.aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/transition-planning/statement-of-need-msl-transitional-services-type-1.pdf?rev=a7d7591d1de94b85a3317d821cd641dd&sc_lang=en.

Action ID	Action name	Description	Scope	Committed output	Completion statement
		This includes the retirement of synchronous generation such as coal or gas, reduction in minimum SWIS demand, significant network augmentations and material connections of GFL IBR such as batteries, wind and solar.		with consideration of publicly available information and identification of difficult operational periods.	synchronous generation requirements, including continuing work in South Australia and new analysis in New South Wales in response to possible generator retirements. These streams will be supported by associated Reduction of Synchronous Generators reports. This work is incorporated into AEMO's broader transition program and is supported by governance via cross-functional senior leadership groups, stakeholder engagement through a dedicated working group with TNSP operational representatives, and external-facing publications. The Horizon 1 transition points for the SWIS (the retirement of Collie_G1 and the CEL-N network augmentation) have been identified and assessed. The impacts and system risks associated with Collie_G1's retirement, particularly those relating to energy adequacy, were presented to Department of Energy and Economic Diversification (DEED) and are now included in the operational readiness declaration. Operational readiness activities for CEL-N are underway, with staged monthly works and commissioning plans being assessed. This satisfies the FY26 objective by establishing regional transition timelines for Horizon 1, identifying key system risks associated with generator retirements, low demand conditions, and increasing IBR, and preparing for actionable mitigation pathways. Identification of system risks is ongoing as conditions change, with the program adapting as required.
FY26_11	Pathway to substituting synchronous capability in the SWIS	Building on learnings from GFM inverters and synthetic inertia, identification of any SWIS-specific barriers or impediments, as well as the pathway to resolution, to GFM inverters or other capabilities which can substitute for some or all of the range of services provided by synchronous	SWIS only	Public AEMO submission to Energy Policy WA (EPWA) review working group, outlining a proposed pathway.	**COMPLETE:** AEMO has progressed development of a pathway to substitute synchronous generation capability in the SWIS, building on analysis of GFM inverters, synthetic inertia, and other emerging technologies capable of providing ESS. EPWA has confirmed support[12] for this initiative and its intent to publish an AEMO submission to progress industry consultation through the Essential System Services Framework Review Working Group[13]. The pathway identifies key barriers to large-scale adoption of these technologies, including gaps in existing standards and regulatory frameworks, uncertainty in performance requirements for IBR, and challenges integrating GFM capabilities within current connection and operational processes. Broader EPWA reform programs are also addressing fragmentation in system security and reliability standards and the need for a more consistent, end-to-end framework to support new technologies.

[12] See https://www.wa.gov.au/system/files/2026-06/mac_18_june_2026_meeting_papers.pdf.

[13] See https://www.wa.gov.au/government/document-collections/essential-system-services-framework-review-working-group.

Action ID	Action name	Description	Scope	Committed output	Completion statement
		generation such as coal or gas.			This satisfies the FY26 objective by establishing a clear, consultative pathway for enabling technologies that can replicate or substitute services traditionally provided by synchronous generation, including frequency control, system strength, and voltage support. The work positions AEMO to progress rule, standards, and operational framework changes required for an inverter-dominated SWIS, with the submission acting as the trigger for ongoing industry consultation and reform.
FY26_12	Assess requirement and options for improving system strength in priority areas	Undertake detailed system strength studies (focusing on at-risk areas identified in the 2025 WEM Electricity Statement of Opportunities [ESOO]) to identify requirements and mitigating options. Note the type of mitigations available may vary due to introduction of a system strength regime in the ESM Rules.	SWIS only	Completion of modelling and identification of priority mitigations required.	**COMPLETE:** System Strength Shortfalls Report has been completed for the SWIS, assessing system strength requirements over a 10-year outlook. The assessment identified priority nodes expected to experience shortfalls, particularly where fault levels are reducing due to coal retirements and increasing contribution of IBR. Three scenarios were modelled to assess system strength under a range of conditions: • Scenario 1 (Base case): updated 2025 WEM ESOO Short Circuit Ratio (SCR) screening case reflecting committed generation, network projects, and expected system development. • Scenario 2 (Concentrated growth sensitivity): higher concentration of new IBR connections in specific regions (particularly the North) to test localised system strength risks. • Scenario 3 (Distributed growth sensitivity): more geographically dispersed connection of new resources across northern, southern, and eastern SWIS to assess system-wide impacts under a more balanced development pathway. This satisfies the FY26 objective by identifying priority system strength shortfalls and informing mitigation pathways, including both network investment and service-based solutions. The work provides a foundation for system strength procurement and supports collaboration with Western Power and EPWA on input assumptions and implementation of the emerging system strength framework.
FY26_13	Improved capabilities to manage minimum system load	Backstop mechanisms implemented in all NEM mainland regions, with capabilities to test functionality, monitor curtailment capability, validate curtailment	NEM delivery with SWIS relevance	Deliver advice to stakeholders outlining status and gaps with respect to the requirements set out in AEMO's 2024 report, supporting secure operations	**COMPLETE:** AEMO has delivered advice to stakeholders outlining the status and gaps associated with emergency backstop capability and management of MSL conditions, consistent with requirements set out in AEMO's 2024 report on secure operations with high levels of distributed resources. This advice has been incorporated into the TPSS[14] published in December 2025.

[14] See https://www.aemo.com.au/-/media/files/major-publications/tpss/2025-transition-plan-for-system-security.pdf?rev=c418ef08855440f89b93ea5f07fe895f&sc_lang=en.

Action ID	Action name	Description	Scope	Committed output	Completion statement
		delivery, and monitor compliance. Average compliance >50%.		with high levels of distributed resources.	Supporting engagement with DNSPs, including New South Wales and Australian Capital Territory networks, identified variability in backstop capability maturity, visibility of distributed resource behaviour, and operational readiness to implement and validate curtailment during low demand conditions. This work informed a clearer understanding of jurisdictional gaps, including limitations in telemetry, testing capability, and alignment of procedures between AEMO and network operators. Updated procedures and control room dashboards have been implemented to support monitoring, testing, and validation of curtailment capability and delivery across mainland NEM regions. These enhancements improve AEMO's ability to manage low demand conditions, strengthen coordination with DNSPs, and track compliance with backstop mechanisms as distributed energy resource contribution increases. SWIS backstop strategy reviewed and terminology aligned. This satisfies the FY26 objective by strengthening operational capability to manage MSL conditions, improving visibility and control of distributed resource curtailment, and establishing a consistent baseline of capability and remaining gaps across regions to inform future uplift activities.
FY26_14	Onboarding of dynamic operating envelope data	Continuation of FY25_14, continuing the work with South Australia Power Networks (SAPN) to understand and onboard its flexible export limits (FELS) data, while identifying AEMO data SAPN needs too (for example, for Voluntary Scheduled Resources [VSR]). Start working with Energy Queensland (EQL) on Flexible Import Limits.	NEM delivery with SWIS relevance	Collaborate with SAPN to agree a data format for FELs. AEMO will seek to onboard at least one live FELs data stream from a DNSP. This will be collaborated on with the CER Data Exchange Project work where relevant.	**COMPLETE:** AEMO has collaborated with SAPN to develop and implement a data interface to improve visibility of FEL constraints applied to distributed PV. This included agreement on a common data model and format, establishment of data transfer mechanisms, onboarding of a live data stream to AEMO systems, and development of dashboards to monitor data quality and reliability. The delivered capability provides near real-time visibility of DNSP-imposed export constraints and includes additional metadata on participating sites, improving AEMO's understanding of distributed photovoltaic (PV) behaviour. This includes visibility of the available megawatt capacity and backstop capability, which supports improved management of MSL conditions and informs future operational decision-making. Engagement has also been extended across DNSPs through workshops and bilateral discussions to share the data model, implementation approach, and key learnings. This satisfies the FY26 objective by establishing a foundation capability for Dynamic Operating Envelope data exchange, reducing information gaps between AEMO and DNSPs and supporting MSL risk management. Further improvements in data quality and reliability are required before full integration into operational forecasting and dispatch processes.

Action ID	Action name	Description	Scope	Committed output	Completion statement
FY26_15	System strength beyond connection point	Continuation of FY25_26, focusing on the practical implementation of system strength provision beyond connection point for potential application in NEM projects. The work supports potential amendments to System Strength Impact Assessment Guidelines (SSIAG).	NEM delivery with SWIS relevance	Progress consultation with NSPs and other stakeholders on implementation of system strength provision beyond the connection point. Incorporate recommendations into the SSIAG.	**COMPLETE:** AEMO has completed the investigation of opportunities for provision of system strength remediation schemes (SSRS) beyond the point of connection (POC), consulting with NSPs and key industry groups to gather feedback ahead of any changes to the SSIAG. These investigations highlighted the feasibility of providing SSRS beyond the POC in certain scenarios. As a result, this item has been proposed for inclusion in the SSIAG updates and has been included in the Consultation Paper for the SSIAG amendments, which is targeted for publication on AEMO's website in FY27. Any further consultation relating to this action will now take place through the SSIAG amendment process. Although developed through NEM-focused engagement, the updated SSIAG may also inform the WEM Power System Security and Reliability (PSSR) review of inverter connection standards, supporting its relevance to the SWIS. This satisfies the FY26 objective by completing consultation with NSPs and key industry groups on the feasibility of providing system strength remediation schemes beyond the point of connection. The findings have informed the proposed SSIAG amendments, with any further consultation and implementation to progress through the SSIAG amendment process.
FY26_16	Horizon 2 transition point planning and analysis	Assess future system operation related to Horizon 2 transition points and propose possible solutions to mitigate any identified challenges.	NEM and SWIS delivery	Develop regional transition timelines for Horizon 2, identifying potential transition points and key activities that need to occur, and publish in the TPSS and other relevant documents.	**COMPLETE:** For the NEM, Horizon 2 transition point planning and analysis has been progressed through development of regional transition plans, published as part of the 2025 TPSS[15]. These plans establish Horizon 2 (2–10 year) timelines and identify future transition points and key activities required to manage evolving system conditions. This includes detailed regional assessments of industry readiness and coordination requirements to support increasing IBR, generator retirements, and emerging operational risks. For the SWIS, initial transition screening assessments (Frequency Stability and SCR screening) have been completed, with further analysis underway to assess key risks, including the implications of state coal retirement (for example, Collie_G1 retirement followed by Muja D in 2029) on future system operation. DER operational risks have also been identified within Horizon 2, noting further investigation required to quantify the impact of Virtual Power Plant (VPP) Participation for Summer 2028-2029. This satisfies the FY26 objective by establishing forward-looking transition timelines, identifying emerging system risks, and progressing coordinated mitigation pathways. The

[15] See https://www.aemo.com.au/-/media/files/major-publications/tpss/2025-transition-plan-for-system-security.pdf?rev=c418ef08855440f89b93ea5f07fe895f&sc_lang=en.

Action ID	Action name	Description	Scope	Committed output	Completion statement
					work supports ongoing development of transition planning frameworks and will continue to evolve as system conditions and investment signals change.
FY26_17	Coal retirement assessment	Assess system risks that may eventuate from the retirement of coal-fired power stations across the NEM (such as Eraring and Yallourn) and the SWIS (such as Collie and Muja D) to inform readiness activities for these upcoming transition points.	NEM and SWIS delivery	Key insights from the assessment will be summarised in the TPSS and other relevant reports, highlighting timing, potential system impacts, and actions needed to support secure operation through these transitions.	**COMPLETE:** Coal retirement assessments have been progressed through targeted security planning studies and operational readiness assessments examining the impacts of retiring coal-fired generators across the NEM and SWIS. These assessments focused on specific transition events, including Eraring, Yallourn, and Collie_G1, and evaluated associated system security risks and required readiness actions. In the NEM, key insights from these assessments have been incorporated into the 2025 TPSS, which outlines system impacts and coordinated actions to maintain secure operation through these transition events. For the SWIS, operational readiness activities have been progressed to support the Collie_G1 retirement, including development and closure of readiness checklists, with further assessment to be informed by the WEM ESOO. This satisfies the FY26 objective by translating coal retirement impacts into readiness measures, ensuring system security is maintained through major generation exits.
FY26_18	FY26_18	Identify new sources of data to monitor DER response to system disturbances and support system studies of emerging phenomena	NEM delivery with SWIS relevance	Definition of DER data needs for analysis of system disturbances, recommendations for sourcing data, via commercial or regulatory means.	**COMPLETE:** AEMO has defined DER data requirements for monitoring response to system disturbances and supporting analysis of emerging system behaviours. Data sources were assessed, including SCADA, high-speed monitoring, and field-based data, identifying existing capabilities and key limitations in visibility of DER performance during disturbances. The work identified practical pathways to source and improve DER data, including DNSP-provided DER classification at the transmission node interface (TNI) level, enhanced inverter bench testing, improvements to high-speed monitoring and SCADA data, and targeted commercial data acquisition. Additional analysis[16] was undertaken for AEMO by Diagno and Race for 2030 project partners, which confirmed higher rates of disconnection among systems larger than 30 kW compared to those below, and analysed inverter fault log information, finding availability and codes to be inconsistent across manufacturers. In the near term, internal analysis of commercially procured field data was assessed as sufficient for immediate operational needs to model DER response to disturbances. Over the medium term, AEMO will work with the industry to consider capturing consistent error code information through CSIP-AUS and/or TS 5573 and related standards and

[16] See https://www.racefor2030.com.au/content/uploads/0758-AEMO-Expanded-scope-final-report.pdf.

Action ID	Action name	Description	Scope	Committed output	Completion statement
					communication protocols, and continue to work with university partners to enhance inverter bench testing. The analysis conducted will also inform development of the broader National CER Data Management Framework and Coordination Function and the Transmission–Distribution Coordination Model, both being led by AEMO under the National CER Roadmap, with implementation prioritised based on operational needs and feasibility. Among other things, these initiatives will help to clarify the roles of DNSPs and AEMO in disturbance analysis, ensure appropriate obligations and resourcing are in place and facilitate a sustainable data sharing arrangement. This satisfies the FY26 objective by defining present and future data needs, identifying new sources of data and establishing recommendations for future data sourcing.
FY26_19	Improve quality of DER standing data	Improve the completeness and quality of data added to the DER register; source standing data on electric vehicles (EVs) and EV supply equipment (EVSE), and DER management; investigate alternative processes for collection and management of DER standing data.	NEM delivery with SWIS relevance	Analysis of DER register status and gaps, with recommendations for scope of DER register data; provide materials supporting the integration of the New South Wales installer portal with DER register; recommendations for EV standing data (outside of DER register).	**COMPLETE:** AEMO has progressed improvements to the quality and completeness of DER standing data through analysis of the DER Register, identification of key data gaps, and development of recommendations to enhance data capture and management processes, including defining the scope of priority DER standing data. Materials have been delivered to support integration of the New South Wales installer portal with the DER Register, enabling improved data collection at the point of installation. While delivery of the integration is continuing in line with Department of Climate Change, Energy, the Environment and Water (DCCEEW) works to protect the state's environment and heritage. It leads the DCCEEW timelines through to November 2026, all required AEMO inputs have been provided for FY26. In parallel, AEMO pursued a non-regulatory work program to identify recommendations for data relevant to EV charging while working with the interjurisdictional CER Working Group on the establishment of future framework to consider regulatory solutions to improve EV and EVSE visibility. AEMO has progressed several near-term EV data initiatives in 2026 including expanded its use of EV tariff datasets to inform operational forecasting and continuing to pursue Non-Invasive Load Monitoring (NILM) EV detection as part of the meter data analytics program. These initiatives/programs are now ongoing and can be found in the Recommendations paper: Electric Vehicle Data[17] published in April 2025.

[17] See https://www.aemo.com.au/-/media/files/initiatives/electric-vehicles/electric-vehicle-data-recommendations-paper.pdf?rev=c31491cb6a0447558144c837dbfbc9b2&sc_lang=en.

Action ID	Action name	Description	Scope	Committed output	Completion statement
					The NEM findings on DER and EV standing-data requirements, gaps and collection approaches could inform equivalent data quality and visibility improvements in the SWIS, supporting more effective management of distributed resources. This satisfies the FY26 objective by defining DER and EV standing data requirements, identifying and progressing actionable pathways to improve data completeness and quality, and supporting integration of new data sources. The work establishes a foundation for improved visibility of distributed resources, with implementation continuing into FY27 in line with external timelines.
FY26_20	CER/DER management during system restart	Identify and assess the feasibility of different pathways to achieve a controlled resumption of distributed PV generation during system restart.	NEM and SWIS delivery	Recommendations for preferred pathway(s), developed through engagement with industry and other stakeholders.	**COMPLETE:** AEMO has progressed the assessment of pathways to support the controlled resumption of DER generation during system restart across the NEM and SWIS. This work included the development and publication of the System Restart under high distributed PV conditions Statement of Need [18]under clause 3.11.12(a) of the NER, engagement with industry proponents, workshops, detailed Request for Information processes, and development of technical scope material to support trial design and assessment. SWIS resources contributed to the development and issuance of the Statement of Need, helping to ensure that SWIS operational considerations were reflected in the work. AEMO has completed market engagement to assess feasible pathways for managing the impacts of DER reconnection during system restart. The outcomes have been consolidated in a Type 2 Transitional Services recommendations report, which assesses feasible options, documents the rationale for excluding alternatives, and proposes a pathway for further consideration and development with relevant stakeholders. The proposed approach is likely to involve a combination of communication and control mechanisms, supported by targeted trials and operational validation. The report is currently for internal use only due to the ongoing procurement process. This satisfies the FY26 objective by identifying and assessing viable pathways for managing DER during system restart and developing a proposed approach informed by industry engagement and technical assessment. Although the Type 2 Transitional Service is being progressed through the NEM framework, the findings and outputs from the trial will also be considered for their relevance and potential application in the SWIS. Implementation will continue through procurement.

[18] See https://www.aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/transition-planning/type-2-services/statement-of-need-system-restart-under-high-dpv-conditions.pdf?rev=4b2196c5fe8942cd86abec6248334ac9&sc_lang=en.

Action ID	Action name	Description	Scope	Committed output	Completion statement
FY26_21	**Former:** Pre-commissioning test plan for grid-forming battery energy storage systems (GFM-BESS) **New** : Hybrid System Commissioning Fact Sheet	**Change in action description:** **Former:** Create and trial a standardised hardware-in-the-loop (HIL) pre-commissioning test procedure to validate GFM-BESS functionality prior to grid connection. **New:** Develop a fact sheet that will guide industry on modular and scalable commissioning programs for hybrid systems to ensure they are fit-for-purpose, future focused and supported by efficient process. A technical scope, resource allocation and project plan will be developed.	NEM delivery with SWIS relevance	**Change in action output:** **Former:** Publish a formal "GFM-BESS Pre-Commissioning Procedure" to support efficient project commissioning and ensure compliance with grid-forming criteria. **New:** Publish on AEMO's website a formal "Hybrid system commissioning fact sheet" to support efficient project commissioning and ensure compliance with hybrid plants criteria. Addition of hybrid examples to the commissioning toolkit documents.	**PARTIALLY COMPLETE:** AEMO has developed a formal draft Hybrid System Commissioning Fact Sheet, replacing the original GFM-BESS pre-commissioning procedure, in response to strong industry demand and the increasing complexity of hybrid plant configurations. The scope has been expanded from a single-technology procedure to a broader commissioning framework that addresses system-level behaviour, dependency-driven interactions, and the coordinated operation of hybrid systems. The fact sheet will provide guidance on modular and scalable commissioning programs, including pre-commissioning requirements for technologies such as GFM-BESS. It will focus on hybrid system configurations, including AC-coupled and DC-coupled arrangements, regardless of the specific technologies used. Early stakeholder engagement with NSPs, OEMs, and developers has been completed through workshops and targeted consultation. Feedback has been incorporated into the draft fact sheet. The draft fact sheet will be provided to the Focus Group, comprising NSPs, OEMs and developers, for final consultation before publication. The guidance addresses industry challenges associated with hybrid systems, including testing multiple operating modes, transitions between operating states, and coordination across plant-level control systems and shared infrastructure. This satisfies the FY26 objective by establishing a structured commissioning framework that supports the demonstration of performance standards, model validation, and system security across hybrid system configurations. While developed through NEM-focused engagement, the guidance is relevant to the SWIS because hybrid plant configurations and commissioning challenges are expected to emerge as IBR, battery storage and hybrid connections increase in the SWIS. The fact sheet is currently a work in progress, with publication on AEMO's website and integration into commissioning toolkit materials to be completed in Q2 FY27.
FY26_22	Frequency scanning trials	Collaborate with NSPs to conduct trials on active projects in the connections process to evaluate the benefits of using the frequency scanning method for designing and tuning IBR control schemes.	NEM delivery with SWIS relevance	Deliver recommendations and learnings for implementation of the frequency scanning method into the connections process.	**COMPLETE:** AEMO has delivered recommendations and learnings for applying frequency scanning methods in the connections process, with a focus on IBR controller design using frequency-domain passivity techniques. This work demonstrates how frequency scanning can identify instability risk bands and inform controller tuning to mitigate sub-synchronous oscillations and improve power system stability. The recommendations are underpinned by completed studies and collaboration with NSPs. Interim outcomes reports were prepared through collaboration between AEMO and individual NSPs, capturing the initial application of frequency scanning methods to connection projects and the associated technical learnings. Each report was shared exclusively with the relevant NSP and was not intended for broader distribution. These

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					studies applied a structured four-step workflow comprising passivity screening, wideband RLC[19] equivalence modelling, phase and gain margin mapping, and controller retuning using the FAST tool and CPP-ITF methodology to derive actionable controller parameter settings and validate performance across varying grid-strength conditions. Additionally, in November 2025, AEMO published IBR controller design[20] using frequency scanning techniques, making key technical findings available to industry through the AEMO frequency scanning webpage. The publication and supporting NSP studies provide the evidence and recommendations needed to inform the implementation of frequency scanning within the connections process. This satisfies the FY26 objective by establishing a practical and scalable methodology for incorporating frequency-domain analysis into connection assessments, replacing iterative trial-and-error approaches with a more efficient and quantitative framework. The work provides a clear pathway for implementation, supported by engineering guidance, the published technical report, and case studies undertaken with NSPs. While based on NEM connection projects, the findings could be relevant to the SWIS and may inform its approach to managing system strength, oscillations, and plant–network interactions as IBR and battery integration increases. A consolidated public report bringing together recommendations and learnings across all studies is planned for release in Q1 FY2027.
FY26_23	Analyse fault current performance from GFM	Investigate potential for GFM-BESS to provide protection quality fault current, including obtaining and analysing fault current data from commissioned GFM-BESS to build understanding of their responses during faults.	NEM delivery with SWIS relevance	Determine whether GFM-BESS may be suitable for consideration for contributing to minimum levels of system strength, and identify any further work required to prove out this capability.	**COMPLETE:** AEMO has undertaken analysis to assess whether GFM-BESS may be suitable for contributing to minimum levels of fault current required to support protection system operation. This work included investigation of GFM fault current performance and assessment of its applicability to protection-related minimum system strength requirement. The analysis[21] identified that there is currently no consistent industry framework defining fault-current performance requirements for GFM technologies, although international efforts are progressing to establish standardised approaches. To support this assessment, AEMO engaged EPRI to undertake electromagnetic transient (EMT) simulation and protection relay playback testing using a simplified test system and multiple fault-current sources, including synchronous machines and two site-specific GFM-BESS plants. These

[19] RLC is a method for simplifying a complex power network or inverter response into an equivalent circuit made of: R- resistance: represents damping or energy losses, L- inductance: represents inductive behaviour and C- capacitance: represents capacitive behaviour

[20] See https://www.aemo.com.au/-/media/files/initiatives/frequency-scanning/inverter-based-resource-controller-design-using-frequency-scanning-techniques--november-2025.pdf?rev=e21c55636aa0426bab1b9f4b512cfb1b&sc_lang=en.

[21] See https://www.aemo.com.au/-/media/files/initiatives/engineering-framework/2025/grid-forming-and-grid-following-inverter-fault-current-contribution.pdf.

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					studies[22], incorporating NEM-representative modelling, highlighted material differences between traditional synchronous fault-current behaviour and GFM-based responses, and their implications for protection system performance. Although the tested GFM plant models were NEM site-specific, the findings are relevant to both the NEM and SWIS. The findings indicate that while GFM-BESS may have potential to support protection system operation, the capability is not yet sufficiently specified, standardised or validated to be relied upon for power system security outcomes. Further work has been identified to define and validate a functional specification for protection-quality fault current, including expanded HIL testing, assessment across different technologies and control implementations, and evaluation under a range of network conditions and protection applications. This satisfies the FY26 objective by assessing the feasibility of GFM-BESS to support minimum system strength requirements and identifying the key technical gaps and further work required to enable potential future inclusion of GFM solutions in system strength frameworks.
FY26_24	Quantifying system strength support from GFM	Investigate and potentially quantify the role and contribution of GFM IBR and synchronous condensers to support stable operation of GFL IBR.	NEM delivery with SWIS relevance	Determination of the required size and optimal location of GFM needed to support stable operation of GFL IBR. The outcome will inform the procurement of the amount of GFM IBR to support stable operation of GFL IBR.	**COMPLETE:** AEMO has demonstrated a frequency-domain method, building on international research, to quantify the system strength support provided by GFM-BESS and synchronous condensers (syncons)[23]. The method characterises how grid strengthening devices respond to changes in voltage magnitude and voltage angle and translates this response into a numerical indicator of dynamic system strength support. This approach provides AEMO, NSPs and project developers a transparent analytical basis for comparing different grid strengthening devices, estimating the indicative size of support required to address system strength issues. It can be used to screen potential remediation options and focus subsequent EMT studies on the most relevant technologies and capacities. It complements rather than replaces detailed, project- and network-specific EMT assessment. This satisfies the FY26 objective by investigating and quantifying the role and contribution of GFM-BESS and syncons in supporting stable operation of GFL IBR. Strategically, the work provides a clearer pathway from identifying a system strength issue, through early comparison and indicative sizing of potential solutions, to targeted detailed validation. It supports AEMO and NSP assessment of potential remediation options and can assist

[22] See https://www.aemo.com.au/-/media/files/initiatives/engineering-framework/2025/grid-forming-bess-fault-current-contribution-study-scope.pdf.

[23] See https://www.aemo.com.au/initiatives/major-programs/engineering-roadmap

Action ID	Action name	Description	Scope	Committed output	Completion statement
					project developers in the early consideration of potential remediation requirements and connection pathways. The findings also show that support capability must be assessed for the specific technology, rating, control settings, operating condition, frequency range and instability mechanism, rather than assumed to be a fixed characteristic of a technology type. As the methods are based on fundamental power system and inverter-stability behaviour, they are applicable to both the NEM and SWIS. Their application, and any resulting technology, sizing or locational conclusions, must reflect the relevant network, device and operating conditions and be confirmed through system-specific assessment.
FY26_25	Inverter-based load modelling	Conduct studies to model the behaviour of inverter-based loads (IBLs), including data centres, hydrogen electrolysers and EV chargers. This includes analysing dynamic responses and their impact on grid stability during disturbances.	NEM delivery with SWIS relevance	Develop technical notes and connection guidance for emerging IBL technologies. Share findings with NSPs and the broader industry to inform future grid planning and technical requirements for connection.	**COMPLETE:** AEMO has undertaken studies to model the behaviour of IBLs, including large data centres, hydrogen electrolysers and other emerging IBL applications. This work included analysis of dynamic response characteristics and assessment of potential impacts on power system stability during disturbances. All modelling activities planned for FY26 have been completed. The studies were supported by engagement with NSPs, OEMs and broader industry stakeholders to improve understanding of emerging IBL technologies and associated connection risks. Analysis completed to date has supported the need for fast post-fault recovery of IBLs and informed the proposed access standards being considered through the Improving the NEM Access Standards – Package 2 rule change process. AEMO has also progressed the development of an Interim Guideline for the Connection of Inverter-Based Loads, drawing on system studies, industry engagement and emerging connection experience. The draft guideline will provide a framework for assessing the impacts of IBLs on system security, including disturbance ride-through capability, system strength considerations, modelling expectations and information requirements for connection studies. The draft guideline is scheduled for publication in September 2026. Although developed through NEM-focused studies and engagement, the guidance can also be relevant to the SWIS, where emerging IBLs, including large data centres and hydrogen electrolysers, may introduce similar system security risks. The findings may provide a technical reference for SWIS specific connection assessments, particularly in relation to disturbance ride-through, post-fault recovery, system strength, modelling and information requirements, subject to alignment with the WEM framework and SWIS operating conditions. This work satisfies the FY26 objective by establishing a technical basis for understanding IBL behaviour, identifying system impacts and developing practical connection guidance for emerging load technologies. AEMO has engaged with all NSPs and broader industry

Action ID	Action name	Description	Scope	Committed output	Completion statement
					stakeholders in developing the draft guideline. Consultation and additional studies are continuing to support its finalisation and inform any further assessment requirements as the uptake of IBLs increases across the NEM.
FY26_26	Horizon 3 analysis to identify system security issues and future investment requirements	Identify future power system requirements, risks, and opportunities relating to Horizon 3 transition points, and foundational system security needs with support from emerging technologies.	NEM delivery with SWIS relevance	Guidance for investors and decision-makers published in the TPSS, including investigation of emerging technological capabilities and their relative maturity for application in the NEM for future system security.	**COMPLETE:** In the 2025 TPSS, Horizon 2 was extended from five to 10 years to reflect stakeholder feedback on the importance of transition planning with sufficient outlook to enable investment decision-making and delivery. Transition point planning relating to FY26_26 has therefore been summarised against action FY26_16 (Horizon 2) above. Part C of the 2025 TPSS included an assessment of emerging technologies and future system security requirements, including detailed evaluation of GFM inverters. The analysis outlines technical capabilities, current readiness levels, and key knowledge gaps, and identifies areas requiring further investigation to support future system security outcomes. The report also provides an overview of hybrid gas turbine–synchronous condenser configurations and large inverter-based loads (LIBLs), highlighting the potential contribution of these technologies to system security, while identifying associated risks arising from material uptake of LIBLs and outlining potential mitigation approaches. AEMO undertook a literature review to identify a broader set of emerging technologies capable of supporting system security across multiple dimensions, summarised in the 2025 TPSS. This satisfies the FY26 objective by identifying future system security risks and opportunities, assessing the maturity and capability of emerging technologies, and providing guidance to investors and decision-makers through the TPSS.
FY26_27	Investigate 100% IBR power system operation and requirements	Identify and assess operating conditions where the grid is running with 100% IBR contribution in terms of energy production (syncons included) and assess stability requirements of such scenarios.	NEM delivery with SWIS relevance	Identify and assess operating conditions where the grid is running with 100% IBR contribution in terms of energy production (syncons included) and assess stability requirements of such scenarios.	**COMPLETE:** AEMO has undertaken an initial comparative assessment of future operating conditions under high and sustained IBR contribution, including scenarios approaching 100% IBR energy contribution supported by syncons. This work focused on screening for emerging inter-area oscillatory stability risks, and identified a credible risk that inter-area oscillations may become more challenging to damp, particularly under high demand scenarios with significant interconnector transfers. This highlights the need for ongoing monitoring and active management of damping performance as system characteristics evolve. The work also found that existing damping mechanisms may require review as the generation mix changes. In particular, the effectiveness of Power System Stabilisers (PSS) on remaining synchronous generators may require periodic reassessment and retuning to maintain effective performance.

Action ID	Action name	Description	Scope	Committed output	Completion statement
					The assessment further explored the role of emerging technologies in supporting system damping. Sensitivity studies indicated that GFM-BESS can materially improve damping when appropriately tuned and located, while synchronous condensers equipped with power oscillation damping (POD) controls can also enhance damping performance. These findings highlight the importance of coordinated use of different technologies to manage system stability in a high IBR environment. This satisfies the FY26 objective by screening stability risks and potential mitigations for operation in high IBR and near 100% IBR scenarios, and by highlighting the evolving role of damping, control tuning, bespoke model and tool development, and emerging technologies in maintaining system security. The findings provide a basis for AEMO and TNSPs to progressively assess damping at relevant system transition points, prioritise model validation and modal analysis, and determine whether damping considerations should inform future planning studies, project assessment or specifications where a defined system need is identified. The work also supports continued development of measurement-based monitoring, using existing phasor measurement unit (PMU)-based visibility to benchmark models and provide early indication of material changes in system damping. It provides the evidence and assessment pathway needed to determine whether targeted planning, project or operational responses are justified. While the assessment was undertaken using NEM operating conditions and the specific oscillatory findings are NEM-specific, the broader insights and assessment approach are relevant to the SWIS. In particular, the work highlights the need to assess how changing synchronous generation, increasing IBR contribution, and the control and location of GFM-BESS and syncons may affect damping performance. Any conclusions for the SWIS would require assessment using SWIS-specific models, operating conditions and system measurements.
FY26_28	Former: Co-design operational coordination architecture with NSPs **New:** Co-design operational coordination architecture	Former: Co-design operational coordination architecture with NSPs to support capabilities that meet the functional requirements of a high-CER system supporting the uplift required in AEMO and NSP systems and processes for urgent	NEM delivery with SWIS relevance	Former: Co-design operational coordination architecture with NSPs to support capabilities that meet the functional requirements of a high-CER system supporting the uplift required in AEMO and NSP systems and processes for urgent near-term priorities and long-	**COMPLETE:** AEMO has progressed the design of an operational coordination architecture to support system operation in a high-CER environment, including scoping of key transmission – distribution (T-D) coordination functions. A Model-Based Systems Engineering (MBSE) assessment was undertaken to assess AEMO's key internal operational systems and capabilities, required to manage increasing levels of distributed energy resources, including operational forecasting, power system modelling, and telemetry and state estimation. The assessment produced architectural outputs to inform future development as the power system becomes more decentralised and complex. These outputs have also been shared internally to help inform the delivery of Project Jupiter in the SWIS.

Action ID	Action name	Description	Scope	Committed output	Completion statement
	and scope T-D coordination function	near-term priorities and long-term foundational capabilities for a high-CER system. **New:** Design operational coordination architecture to support capabilities that meet the functional requirements of a high-CER system supporting the uplift required in AEMO systems and processes for urgent near-term priorities and long-term foundational capabilities for a high-CER system; scope T-D coordination function(s)		term foundational capabilities for a high-CER system. **New:** Design an operational coordination architecture that supports the capabilities needed to meet the functional requirements of a high-CER system. This work will scope the required T-D coordination functions and identify the uplift needed to AEMO's systems and processes to address urgent near-term priorities and establish long-term foundational capabilities.	During FY2026, the component of the action relating co-design with NSPs on the evolution of the T-D interface was transitioned into a National CER Roadmap work program on T-D coordination. AEMO focused on developing the internal architectural framework and scoping the T-D coordination function, aligned with priorities identified through the CER Roadmap and internal stakeholder engagement. AEMO also developed the initial project scope and implementation plan for the T-D coordination work program for Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW) as part of the National CER Roadmap, providing a structured pathway for capability development and integration with broader CER initiatives, through a multi-year industry collaboration. This satisfies the revised FY26 objective by establishing the operational architecture and defining the scope of T-D coordination required to support a high-CER power system. The work provides a foundation for future co-design with NSPs and supports ongoing development of system operation capabilities and processes required for reliable operation in a highly distributed energy environment.
FY26_29	Early assessment framework – OEM trials	Partner with OEMs and NSPs to test new products/models through AEMO's Early Assessment Framework (EAF). Collect feedback and refine the assessment approach.	NEM delivery with SWIS relevance	Refined Early Assessment Framework based on OEM and NSP feedback enabling early engagement with innovative technologies seeking grid connection.	**COMPLETE:** AEMO has implemented the Early Assessment Framework (EAF) to support early engagement with OEMs seeking connection to the grid. This enables streamlined generator connection assessments using the pre-assessed models, supporting a more efficient and consistent connection processes. AEMO has successfully completed the first assessment of an OEM model under the EAF, resulting in the issuance of a Certificate recognised by AEMO's grid connections team. Two additional assessments are progressing and expected to be completed in Q1 FY27. These assessments also provided practical insights into the application of the EAF[24]. These insights have informed refinements to the EAF Guideline to improve clarity. Although developed for the NEM, the EAF learnings may support more efficient OEM model assessments and grid connections in the SWIS. This satisfies the FY26 objective by demonstrating the value of the EAF, enabling early validation of innovative technologies, and developing a refined framework. The updated EAF Guideline was published on AEMO's website in July 2026.

[24] See https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/participate-in-the-market/network-connections/transmission-and-distribution-in-the-nem/early-assessment-framework.