

Transmission system operational capability framework

Overview

A voluntary industry framework to
support efficient transmission
system operational capability

September 2026





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.

'Journey of unity: AEMO's Reconciliation Path' by Lani Balzan

AEMO is proud to have launched its first [Reconciliation Action Plan](#) in May 2024. 'Journey of unity: AEMO's Reconciliation Path' was created by Wiradjuri artist Lani Balzan to visually narrate 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

The Transmission System Operational Capability Framework (TSOCF, or framework) is a voluntary guide to transmission system operations capability planning in the national electricity market. It provides a considered, consistent and transparent view of the transmission system operational capabilities needed to support the energy transition and an increasingly complex operating environment. It is intended to support AEMO and Transmission Network Service Providers to assess, prioritise and progressively improve operational coordination, capability and maturity.

By supporting the secure, reliable and efficient use of the transmission system, the framework is ultimately intended to contribute to better outcomes for consumers and communities. These outcomes may include improved reliability and system security, more efficient expenditure and greater operational flexibility. Better use of existing assets and consideration of a broad range of capability solutions may also help avoid or defer unnecessary infrastructure, reducing costs and potential impacts on communities.

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1 Transmission system operational capability in the NEM

This chapter introduces transmission system operational capability in the national electricity market (NEM), explains why a shared framework is needed to support secure, reliable and efficient operation through the energy transition, and summarises the purpose of the Transmission System Operational Capability Framework (TSOCF, or framework) as a voluntary guide for capability planning and uplift. It also explains how stronger operational capability is needed to support better outcomes for consumers and communities by helping the power system respond to change safely, efficiently and flexibly.

1.1 What is transmission system operational capability in the NEM?

Transmission system operational capability is the ability to coordinate, monitor and operate the transmission system, and to respond effectively when system conditions change. Its purpose is to support secure, reliable and efficient operation of the NEM.

Transmission system operational capability depends on having the right people, processes, systems, data, tools and governance for both operational planning and real-time activities. It includes maintaining the system within technical limits, responding to credible and non-credible disturbances, and supporting system restart following a widespread outage.

Operational capability is exercised in the NEM within a shared operational model where AEMO coordinates the power system and is responsible for maintaining power system security under the National Electricity Rules (NER). Transmission Network Service Providers (TNSPs) manage and operate transmission assets within their respective networks and work with AEMO to support secure operation across the NEM. While AEMO has overall responsibility for maintaining power system security, some operational functions are performed by certain TNSPs under regulatory delegation arrangements.¹ These delegated functions are an important part of the shared operating model (see section 1.4). While some functions are specifically delegated to TNSPs, AEMO's ability to fulfil other functions² depends on TNSP's maintaining appropriate supporting capabilities.

In this context, transmission system operational capability extends beyond the operation of physical assets. It includes the operational coordination, situational awareness and preparedness required for AEMO and TNSPs to operate effectively under changing system conditions. The importance of this capability is increasing as the NEM continues to transition. The NEM is a large, complex and geographically dispersed interconnected power system. Its operating environment is becoming more dynamic and challenging as demand extremes occur more frequently, demand fluctuation increases, and inverter-based resources (such as windfarms and roof-top solar PV) become more prominent across both transmission-connected and distribution-connected parts of the system.

¹ Refer AEMO website for details: www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/system-operations/power-system-operation/schedules-for-delegations

² For example, AEMO's responsibility for power system procedures NER 4.10.1/4.10.2 is more effectively carried out in a changing power system when AEMO has better visibility and forward mapping of the capabilities considered in developing those procedures.



Such changes are increasing the complexity of real-time operations and placing greater importance on effective forecasting, outage management, operational decision-making and cross-network security management. In this context, strengthening transmission system operational capability is essential to support secure, reliable and efficient operation of the NEM through the energy transition.

1.2 Why is a framework needed?

Electricity supply and demand must remain balanced in real time, and the power system must remain within secure operating limits. As the generation mix becomes more variable and consumer demand becomes more dynamic through the energy transition, maintaining this balance will require greater flexibility across generation, networks, storage and consumer resources.

Recent NEM assessments provide a clear and consistent picture of emerging risks to power system security as the NEM transitions to a high-renewables, increasingly dynamic operating environment to the 2035 horizon.

- [2025 Transition Plan for System Security](#) (TPSS) identifies where and when operational stress will emerge as the generation mix changes.
- [General Power System Risk Reviews](#) (GPSRR) demonstrate that these stresses translate into material, system-level risks that existing operational and regulatory arrangements are not designed to manage.

Taken together, this establishes that strengthening transmission system operational capability is no longer optional or incremental - it is a prerequisite for maintaining power system security and reliability as the energy transition accelerates.

*However, there is currently no aligned and accepted framework of technical competencies to guide and drive the uplift required across these operational capabilities, creating a **critical gap between identified risk and system readiness**.*

Within the context of the scale and speed of the energy transition, AEMO and each TNSP will need to anticipate and stay ahead of key emerging operational capability challenges, or risk being left without the appropriate capabilities to effectively manage those challenges. The largest emerging resilience risk is the widening gap between power system complexity and operational capability. Investment decisions will need to be considered against their ability to close that gap.

A capability framework is a link aligning these challenges with identified future power system requirements to address those challenges. It is needed to promote informed prioritisation and pacing of limited resources, allowing steady and efficient progress to be made while accounting for planning and budgeting timeframes and project lead times.

Closing the gap between power system risk and operational capability is essential to maintaining a secure, reliable and efficient power system for the benefit of consumers and communities. As operating conditions become more complex, stronger capability can help power system operators identify risks earlier, respond effectively to changing conditions and make better-informed, coordinated decisions. The framework helps focus capability decisions on practical consumer value by supporting use of existing assets, considering operational and technology solutions alongside infrastructure options, and capability uplift where it is expected to provide the greatest value or address the most material risk. In this way, the



framework is intended to contribute to lower long-term system costs, reduce reliability and security risks for consumers, and potentially reduce impacts on communities.

In this context, AEMO and TNSPs agreed in late 2025 to collaborate on a capability framework to address the gap between identified risk and operational readiness. A shared framework enables operational capability for a high- renewables future to be developed early, consistently, and through deliberate, planned approaches rather than reactive, ad-hoc responses. It also supports secure, reliable and efficient operation of the NEM in the long-term interests of consumers. By enabling earlier, more coordinated and risk-informed capability planning, the framework is intended to support solutions that deliver value to consumers.

1.3 What is the framework's purpose?

The TSO CF is a guide to transmission system operations capability planning. It provides a consistent and transparent view of the operational capabilities needed to support the energy transition and assists AEMO and TNSPs to assess, prioritise and progressively enhance operational coordination, capability and maturity. The framework may also support TNSPs in explaining operational capability needs, gaps and proposed uplift activities through relevant regulatory submission processes.

By promoting a risk-informed and forward-looking approach to capability planning, the framework supports secure, reliable and efficient power system operation in the long-term interests of consumers, consistent with the national electricity objective. The intended consumer and community benefits include:

- Maintaining power system security and reliability as the risk and complexity of operating conditions increases
- Supporting efficient and proportionate capability expenditure, which can help place downward pressure on long-term system costs
- Enabling greater operational flexibility and faster integration of renewable generation, storage and consumer energy resources, supporting emission reduction objectives
- Improving the use of existing network assets and supporting consideration of alternative solutions, which may avoid or defer unnecessary infrastructure and associated community impacts.

The framework does not seek to produce a single prescribed outcome or uniform implementation pathway. Its value lies in providing a common language and structured reference point to support discussion, prioritisation and operational coordination across AEMO and TNSPs. Applied in this way, it supports more informed, transparent and consistent capability development and helps ensure that uplift remains aligned with the changing needs of the power system.

The framework consists of:

- This overarching explanatory document setting out intent, scope and structure of the framework and how to use it.
- Documented in the accompanying spreadsheet, a capability-based framework describing the operational capabilities that support effective transmission system operation. The spreadsheet also contains a worked example of how to apply the capability framework.

1.4 Who should use the framework?

The operational responsibilities associated with transmission system operation are performed by the **primary TNSPs**³ in each jurisdiction that undertake functions such as real-time network operations, outage coordination, operational planning and coordination with AEMO. Throughout this document, references to transmission system operational capability relate specifically to these transmission system operator (TSO) functions.

Accordingly, the TSO CF is intended for AEMO and transmission businesses that perform TSO functions, typically those TNSPs that hold an [Instrument of Delegation](#) with AEMO to assist with the management of power system security (see box below).

The framework is not intended to apply to distribution network service providers or organisations whose role is limited primarily to transmission asset ownership or limited operational transmission activities. Section 2.4 addresses the framework's alignment with related initiatives, including how it is intended to evolve alongside distribution system operator arrangements and the related work on transmission–distribution coordination.

TNSP delegated functions for system security

AEMO can appoint delegates to carry out some of its power system security functions on its behalf (NER 4.3.3(a)). These functions are typically delegated to TNSPs via [Instruments of Delegation](#) and are defined in Schedule 1 of each TNSP's Instrument of Delegation.

The delegated functions focus on execution and local coordination activities and typically include:

- Load shedding and restoration
- System restart implementation
- Transmission–distribution coordination and liaison
- Maintaining power system security under communications or control system disruption.

Instruments of delegation currently apply to AusNet, TransGrid, ElectraNet, Powerlink and TasNetworks.

In the context of the TSO CF, these delegated functions are critical as they define operational capabilities TNSPs must have to support secure system operation. This is particularly important in an increasingly renewable-dominated power system, where effective local decision-making and coordination are essential.

³ Primary TNSPs are defined in the NER as the “Transmission Network Service Provider who operates the largest transmission network in each participating jurisdiction but does not include a Transmission Network Service Provider for a declared transmission system.”

2 How the framework was developed

This chapter explains the TSO CF's development timeline and how the underlying principles, scope and consideration of related initiatives have contributed to its final form.

2.1 Framework development timeline

The framework was developed through the joint efforts of AEMO and various industry stakeholders, including TNSPs and consumer representatives. Table 1 describes the three stages of the framework's development and future implementation.

Table 1 Transmission system operational capability framework development and implementation

STAGE:	1 CAPABILITY LIST	2 FRAMEWORK	3 IMPLEMENTATION
TIMING	Dec 2025 to Apr 2026	Apr to Sep 2026	Oct 2026 onwards
DESCRIPTION	Draft capability list developed for core transmission system operation functions essential to the transition to high-renewable generation conditions.	Capability list integrated into implementable framework to provide consistent & transparent view of transmission system operational capabilities needed to support the energy transition.	TNSPs and AEMO to assess, prioritise & progressively improve operational capability and maturity, guided by applying the TSO CF.
STAKEHOLDERS	Endorsed by the NEM Operating Committee (NEMOC) and Executive Joint Planning Committee (EJPC). Developed by technical working group of TNSPs, CutlerMerz (consultant) and AEMO.	Developed by technical working group of TNSPs, CutlerMerz, AEMO. Parallel regulatory input from AEMO & TNSPs. Structured engagement with AER, AEMC, ENA, consumer representatives.	Industry stakeholders and market bodies to review and update the framework as appropriate as related initiatives evolve and the energy transition progresses.

2.2 Principles

This section outlines the key principles that underpin the TSO CF. Refined through stakeholder engagement, the principles guide the framework's design and application, including its focus on consumer and community outcomes, future power system needs, practical capability uplift, effective coordination and alignment with existing regulatory processes. Together, these principles support a consistent approach to strengthening transmission system operational capability across the NEM.

Purpose and long-term context

- 1. Consumer and community outcomes:** Capability uplift should ultimately support the long-term interests of consumers through secure, reliable, safe and efficient power system operation. Application of the framework should consider the expected value of capability uplift, including operational flexibility, the efficient use of existing assets and minimising unnecessary consumer costs and community impacts.
- 2. Outcomes-focused and aligned to power system requirements:** The framework provides a shared, outcomes-focused reference for the transmission system operational capabilities required to support secure, reliable and efficient power system operation as the energy transition progresses. Capabilities are explicitly linked to power system needs and operational outcomes to support forward-looking capability development across the NEM.

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3. **Enduring and future-oriented:** Capabilities are defined as enduring organisational abilities that remain relevant under changing system conditions, including increasing complexity, evolving operating modes, and new technologies. The framework is designed to support capability uplift through Horizon 2 and beyond.⁴

Framework design and coordination

4. **Capability-based, not solution-prescriptive:** The framework defines what capabilities are required, not how they must be implemented. It does not prescribe specific technologies, tools, organisational structures or operating models, enabling TNSPs to determine the most appropriate implementation approach while maintaining flexibility over time.
5. **Focused on capability uplift:** The framework targets capabilities that require deliberate uplift beyond current business-as-usual practices to meet future system needs. Routine or organically evolving functions are intentionally excluded to maintain focus on areas of material change and risk.
6. **Operational in scope:** The framework is limited to capabilities that directly support transmission system operations, including specific operational planning functions, real-time operations, outages and emergency response. Activities outside this scope are excluded to ensure clarity and focus.
7. **Alignment, consistency and coordination:** The framework promotes a consistent understanding of transmission system operational capabilities across the NEM, supporting alignment between AEMO and TNSPs. It provides a common reference point to improve operational coordination and enable more consistent planning and capability development.
8. **Clear role boundaries and non-duplication:** The framework clearly delineates roles and responsibilities between AEMO and TNSPs. It seeks to avoid duplication of capability unless there are clear regulatory or operational needs and value in maintaining redundancy or resilience.

Regulatory setting

9. **Complementary to existing regulatory processes:** The framework is a voluntary guidance tool and does not impose new obligations. The framework may be used by TNSPs as supporting evidence and an assessment tool to explain identified capability needs, maturity gaps, dependencies and proposed uplift activities in regulatory submission processes. It does not duplicate, replace, or pre-empt regulatory processes, including Australian Energy Regulator (AER) revenue determination or decision-making functions, and is intended to complement existing regulatory frameworks as a common reference point for capability-related proposals and assessments.

Usability

10. **Structured, assessable and practical:** Capabilities are defined at a level that supports practical application, including assessment of current and future state across people, process, systems and governance. The framework structure supports usability, comparability and staged maturity assessment.
11. **Clear, consistent and capability-oriented language:** Capabilities are expressed using consistent, capability-based language to reinforce that the framework describes organisational abilities rather than obligations, solutions, tasks or prescriptive requirements. This supports clarity, shared understanding and effective communication across stakeholders.

⁴ Horizon 2 is defined in the [Transition Plan for System Security](#) as 2-10 years into the future.



2.3 Scope

This section defines the scope and boundaries of the TSO CF, including what the framework covers, what it does not cover, and how it should be interpreted in relation to existing regulatory processes and responsibilities. The scope of the TSO CF is aligned with the principles underpinning the framework, including its voluntary nature, outcomes-focused approach, support for consistency and coordination between AEMO each TNSP, and clear separation from regulatory decision-making processes.

To reiterate:

- The TSO CF is a voluntary guidance framework.
- Its adoption is not mandated by the NER.
- It does not impose any new compliance obligations on TNSPs or other participants.

2.3.1 In scope

The following matters are within the scope of the TSO CF:

- **Transmission system operational capabilities.** The TSO CF focuses on transmission system operational capabilities of primary TNSPs, including capabilities relating to delegated responsibilities, that are expected to become increasingly important as the power system transitions through Horizon 2. It is limited to capabilities relevant to transmission system operation and does not seek to cover all aspects of a TNSP's business or all activities relevant to the transmission sector.
- **Existing and new operational capabilities.** The framework applies to both existing transmission system operational capabilities that may require uplift and genuinely new operational capabilities that may be required to address emerging future system needs. For existing capabilities, the focus is on demonstrating the need for uplift. For new capabilities, the focus is on establishing the need for the additional capability, including the operational problem it addresses.
- **TNSP operational roles and AEMO coordination.** The framework includes operational capabilities required by TNSPs to fulfil their transmission system operation roles, including capabilities that support effective coordination with AEMO at relevant operational interfaces. It provides a common reference point for aligning on operational responsibilities, interfaces and capability expectations as system conditions evolve.
- **Operational interfaces with distribution and sub-transmission systems.** Although the framework does not define operational capabilities for distribution network service providers, it includes transmission system capabilities needed to manage operational interfaces with distribution and sub-transmission systems. This may include information exchange, situational awareness, coordination, operational liaison and response arrangements where these are relevant to secure and reliable transmission system operation.
- **Capability maturity and planning considerations.** The TSO CF provides a common reference point for relevant capability definitions, maturity considerations and operational planning activities. It can assist TNSPs and AEMO in preparation for emerging operational challenges as system conditions evolve.
- **Voluntary self-assessment and capability uplift.** The framework supports voluntary self-assessment by TNSPs against future operational capability needs. It may assist TNSPs to identify potential capability gaps, dependencies, areas for uplift and associated people, process, technology and funding requirements.

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- **Shared understanding and common language.** The TSOCF supports a shared understanding of the operational capabilities required to support secure, reliable and efficient transmission system operation across the NEM. It provides a common language for discussing transmission system operational capability in relevant planning, engagement and governance processes. Where operational risks or responses extend across interconnector boundaries, the framework can also support alignment of relevant capabilities and more effective coordination between transmission system operators.

2.3.2 Out of scope

The following matters are outside the scope of the TSOCF:

- **Jurisdictions outside the NEM.** The framework applies to the NEM only. It does not apply to Western Australia or other jurisdictions outside the NEM.
- **Subset of network service providers:** The framework applies to primary TNSPs that perform TSO functions. It is not intended to apply to distribution network service providers or organisations whose role is limited primarily to transmission asset ownership or limited operational transmission activities.
- **New regulatory requirements.** The TSOCF is not a regulatory instrument and does not create new obligations for TNSPs or other participants. The framework references the relevant existing mandatory requirements, including specific NER obligations, to provide context for each operational capability. However, it does not introduce additional compliance obligations or alter existing regulatory obligations.
- **Economic evaluation, regulatory determination and investment approval processes.** The TSOCF does not duplicate, replace or pre-empt any aspect of the AER's revenue determination processes, regulatory guidelines or decision-making role, but helps inform these processes. It is not a cost-benefit analysis, investment approval or funding approval mechanism, and does not determine whether capability uplift activities should proceed or be funded, or create expectations that pre-empt regulatory outcomes. The framework provides a capability reference point only. Economic evaluation, expenditure assessment, investment prioritisation and regulatory determinations remain subject to established organisational and regulatory processes.
- **Prescriptive technical solutions.** The TSOCF does not prescribe specific technologies, systems, tools, operating models or implementation pathways. It describes the operational capabilities that will be required, rather than how those capabilities must be delivered. Each organisation retains flexibility to determine the most appropriate way to achieve relevant capability outcomes, having regard to its operating environment, responsibilities and existing systems and processes.

Notwithstanding this, the framework may identify limited areas where a degree of technical standardisation or consistent approach is necessary to support efficient and effective system operation, including coordination with AEMO. In such cases, it may be appropriately justified to provide guidance on preferred or common approaches where this reduces complexity, avoids unnecessary cost or duplication, or improves interoperability (for example, where consistent formats, interfaces or communication protocols are required to support timely and reliable operational coordination).

Further, the framework does not prevent organisations from considering non-network, service-based or sub-transmission solutions where these can contribute to the required transmission system operational capability or outcome. The appropriate solution, including whether it involves existing assets, new infrastructure, operational



changes, technology, services or a combination of measures, remains subject to the organisation's established planning, assessment, investment and regulatory processes.

- **Activities outside transmission system operations.** The framework does not cover areas outside transmission system operations, such as asset construction, maintenance, broader market functions, connection and network planning processes, IT, cyber security or core business-as-usual functions.
- **Future policy or reform arrangements.** The TSO CF does not pre-empt future arrangements that may arise through jurisdictional policy development, market reform or related regulatory processes. Where relevant, the framework should be reviewed and updated over time to remain aligned with related initiatives, including future transmission-distribution coordination reforms or other developments that may affect operational capability requirements.

2.4 Alignment with related initiatives

The TSO CF was developed alongside broader reform work that is reshaping how the NEM will be planned and operated through the energy transition. It has been, and should remain, evaluated alongside the following initiatives at a minimum:

- **National Consumer Energy Resources (CER) Roadmap** workstreams (2026 to beyond 2030) on redefining roles for market and power system operations, including **distribution system operator arrangements**, and the related work on **transmission–distribution coordination**. These initiatives are concerned with clarifying future roles, responsibilities, interfaces and operational arrangements in a high-CER future. The TSO CF complements this work by providing a transmission system operations capability perspective, but does not seek to pre-empt the design of future transmission–distribution coordination arrangements. The TSO CF does not define the future roles or capability requirements of distribution system operators. However, it recognises that transmission system operation increasingly depends on effective coordination across transmission-distribution interfaces. Relevant transmission-level coordination capabilities are therefore within scope, while the design of future distribution roles and arrangements remains with the associated CER Roadmap, market reform and regulatory processes.
- Australian Energy Market Commission's (AEMC) **Electricity Network Regulation Review** (mid 2026 to late 2027) may shape the broader regulatory context in which the TSO CF operates. The review applies to electricity network regulation across the NEM, including both transmission and distribution network service providers. The review is considering the future services that network businesses may need to provide, including matters relating to service classification and ring-fencing arrangements, as well as whether the economic regulatory framework appropriately enables, incentivises and funds the efficient delivery of network services and operational capabilities through the energy transition.

The framework will be reviewed and updated as appropriate as these related initiatives evolve.

3 How to use the framework

This chapter explains how the TSO CF is structured and how it is intended to be used by AEMO and TNSPs as a reference for assessing, prioritising and planning transmission system operational capability uplifts with consideration of operational and consumer value.

3.1 How is the framework structured?

The TSO CF is structured as a tiered capability framework that provides a clear and consistent way to describe and align on the operational capabilities needed to support transmission system operation through the energy transition. It organises those capabilities from broad operational areas to more specific capability statements, supporting a shared understanding of the transmission system operational capability landscape across the NEM.

The framework is organised into eight primary capability domains. Table 2 describes each of these domains and their high-level operational value and consumer or community benefits.

Table 2 Descriptions of primary capability domains

PRIMARY CAPABILITY DOMAIN	OPERATIONAL PURPOSE	CONSUMER OR COMMUNITY BENEFIT
1. Operational planning and forecasting	Anticipates changing system conditions and enables coordinated, risk-informed operational planning.	Supports reliable supply, efficient use of existing assets and timely, proportionate expenditure.
2. Real-time network operations	Maintains secure operation through timely situational awareness, decision-making and coordination.	Reduces the risk and impact of supply interruptions and supports integration of new energy resources, including consumer energy resources.
3. Real-time asset management	Supports informed management of asset condition, availability and operating limits in real time.	Improves reliability and asset utilisation while reducing avoidable failures, restrictions and costs.
4. Monitoring and reporting	Provides reliable information, assurance and operational learning to support effective decisions.	Strengthens transparency and accountability to help manage risks affecting consumers.
5. Outage management	Coordinates planned and unplanned outages while managing system-wide risks and dependencies.	Minimises avoidable disruption and supports efficient, safe delivery of essential network works.
6. Operational safety and risk management	Identifies and controls operational hazards and system risks through consistent, accountable decision-making.	Protects workers and communities and supports safe, secure and reliable electricity supply.
7. Emergency dispatch	Enables rapid and coordinated action to protect and restore the power system during emergencies.	Limits disruption and supports orderly, timely restoration for consumers and essential services.
8. Operational resilience and business continuity	Maintains or restores critical operational functions when systems, facilities or resources are disrupted.	Reduces the likelihood of prolonged supply impacts and supports faster community recovery.

These domains represent the major functional areas of transmission system operations across the operational lifecycle and provide the overall structure of the framework. Within each domain, the framework identifies a set of core capabilities. These describe the principal operational capabilities required within each functional area and form the building blocks of the TSO CF. For each core capability, the framework includes a capability description, an outline of the relevant emerging



situation, what is needed, and reference to associated obligations and NER provisions. This is intended to support a clear understanding of the purpose of each capability and its relevance to transmission system operation.

3.2 How should the framework be applied?

The TSO CF is intended to be applied as a tool for capability assessment, planning and improvement. It supports a shared understanding of the operational capabilities that may be required as power system conditions evolve and provides a structured basis for identifying where capability uplift may be needed over time. Consistent with its purpose, the framework describes what capabilities may be required, rather than prescribing how they should be delivered. In addition, the framework spreadsheet also includes a worked example describing the different levels of maturity under future system conditions. This example provides guidance on how TNSPs should apply the framework.

In practice, the framework can be used to review current operational capability against the capability areas set out in the accompanying spreadsheet. This supports a structured assessment of current state, identification of capability gaps and dependencies, and consideration of relevant uplift actions based on the organisation's operating environment, responsibilities and future needs. Applied in this way, the TSO CF promotes a consistent, risk-informed and forward-looking approach to capability planning, rather than reactive or ad hoc responses to emerging operational challenges.

The framework is most effective when applied across the parts of an organisation that collectively contribute to transmission system operation. Depending on the capability area, this may include operational, engineering, planning, outage management, asset management, operational technology, compliance and other support functions. A cross-functional approach supports a more accurate assessment of how capability is delivered in practice, including the interaction between people, processes, systems, tools and operational governance.

Application of the TSO CF should be supported by appropriate organisational evidence and judgement, including existing procedures, operating practices, tools, training arrangements and governance processes. Maintaining clear records of assessments, including identified gaps, dependencies and uplift priorities, can improve consistency over time and support future reviews of capability progress.

3.3 Recommended application process

To support consistent and practical application of the TSO CF, the following section outlines an approach that organisations may use to assess, prioritise and plan capability uplift.

The TSO CF should be applied through a structured and repeatable process that supports consistent assessment, prioritisation and uplift planning across relevant transmission operational capabilities. While the framework is voluntary and should be adapted to each TNSP's operating context, the following process provides a recommended approach for applying it in a practical and evidence-based manner.

3.3.1 Define the assessment scope and identify relevant capabilities

Each organisation should first define the scope of the capability assessment, including the operational functions, network areas, jurisdictions, interfaces and capability domains to be considered. This should reflect the organisation's role in



transmission system operation, compliance with its NER obligations, its interaction with AEMO and other network service providers, and expected changes in the operating environment.

Within the defined assessment scope, relevant capabilities should then be identified from the framework, either comprehensively or as a targeted subset based on the organisation's context, forecast conditions and operational interfaces.

3.3.2 Assess future requirements and current maturity

For each relevant capability, organisations should assess both the level of maturity likely to be required under future system conditions and their current maturity against the framework's definitions.

Assessment of future capability requirements should be informed by system risk assessments, planning outputs, operating experience, and forecast state of the power system. Current maturity should be evaluated across people, process and technology dimensions, supported by appropriate evidence such as procedures, tools, training and governance arrangements.

3.3.3 Identify gaps and prioritise uplift

Once current capability maturity and future requirements are determined, a comparison should be undertaken to identify capability gaps, dependencies and constraints. These gaps should then be prioritised based on their potential impact on power system security, operational resilience and coordination, as well as implementation feasibility, interdependencies and expected consumer and community value.

3.3.4 Develop and maintain an uplift roadmap

Organisations should develop a structured uplift roadmap to address prioritised capability gaps, including proposed actions, indicative timing, dependencies, accountable functions and expected outcomes. This should include consideration of people, process, system and funding requirements. Where appropriate, this should align with existing planning, regulatory and investment processes.

Outputs from the assessment and uplift roadmap may support TNSP regulatory submission development by providing a structured evidence base for the operational need, current maturity, identified gaps, dependencies and expected capability outcomes associated with proposed uplift activities. However, TSOCF assessments and uplift roadmaps are intended to provide supporting evidence only and do not establish regulatory need, prudency, efficiency, funding entitlement or regulatory approval. Any proposed expenditure remains subject to the applicable economic evaluation, expenditure assessment and regulatory determination processes.

The assessment and roadmap should be reviewed and updated periodically to reflect changes in system conditions, regulatory developments and progress against planned actions. Outcomes, including consumer and community outcomes, may also inform ongoing engagement with AEMO and other stakeholders, particularly where uplift has cross-network or system-wide implications.



4 Evaluating the framework

This chapter outlines how AEMO will work with TNSPs to support adoption and application of the TSO CF, monitor how it is being used and evaluate whether its application is supporting improved operational readiness and consumer outcomes. It also outlines how AEMO may provide transparency on framework adoption, emerging operational capability concerns and opportunities to improve the framework's practical application.

4.1 Supporting adoption and application

The TSO CF provides a common reference point for AEMO and TNSPs to discuss the operational capabilities needed to support secure, reliable and efficient transmission system operation as power system conditions evolve.

AEMO will work with TNSPs through established governance and engagement arrangements to support practical and proportionate adoption of the framework. This may include:

- Supporting consistent interpretation and application of the framework
- Facilitating coordination on capability matters affecting shared operational interfaces
- Enabling the exchange of experience and lessons from framework application
- Developing supporting materials, such as assessment templates, guidance and worked examples, where these would improve usability
- Supporting coordinated consideration of capability gaps that may affect end-to-end operation of the NEM.

These activities may draw on established forums, such as NEMOC and EJPC, and other working groups or engagement arrangements as appropriate. They are intended to maintain industry involvement and support effective application of the framework without prescribing how an individual TNSP must implement capability uplift or creating new compliance obligations.

4.2 Monitoring use and outcomes

AEMO will engage with TNSPs and other relevant stakeholders to understand how the TSO CF is being used and whether its application is supporting its intended outcomes.

Evaluation should consider both adoption of the framework and its contribution to operational capability planning. Relevant indicators may include:

- Improved identification and management of operational capability risks
- More consistent, coordinated and forward-looking capability assessment and uplift planning
- Improved visibility of emerging capability gaps, dependencies and risks at shared operational interfaces
- Evidence that capability uplift is being appropriately prioritised, including having regard to expected consumer and community value

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- Improved coordination where operational risks or responses extend across network or interconnector boundaries
 - Stakeholder feedback on the framework's clarity, transparency, usability and practical value.

AEMO monitors emerging operational readiness issues through its ongoing planning, operational and stakeholder engagement processes, and may reflect relevant concerns in publications such as the GPSRR and TPSS where appropriate. Where AEMO identifies emerging areas of concern that could influence effective end-to-end operation, it may make recommendations about how those concerns could be addressed, for example through increased maturity level requirements. Any recommendations would be intended to support operational readiness and coordination, not to direct individual TNSP investment decisions or pre-empt regulatory processes.

Monitoring may also identify areas where additional guidance, examples, templates or other supporting materials would improve application of the TSO CF. Material changes to the framework or its supporting materials will be managed through the review and update process described in section 5.

4.3 Transparency and reporting

AEMO may provide an annual description of TSO CF adoption and application in an appropriate publication, such as the TPSS. This description will provide an appropriate level of transparency on how the framework is being used, the extent to which it is supporting operational readiness and coordination, consideration of consumer outcomes, and any emerging areas of concern identified through AEMO's engagement with TNSPs.

In providing this description, AEMO will balance transparency with the need to maintain confidentiality as appropriate. This may include using high-level descriptions, aggregating or anonymising information, and avoiding disclosure of sensitive or TNSP-specific information. Where appropriate, AEMO will also describe any recommendations for addressing those concerns.

This approach is intended to support continuous improvement in transmission system operational capability across the NEM. It will help AEMO and TNSPs maintain a shared view of operational readiness, strengthen coordination at key interfaces, and respond proactively as system conditions, operational practices and related industry initiatives (including relevant CER roadmap and transmission-distribution coordination work) evolve.



5 Maintaining the framework

This chapter outlines the proposed governance and ongoing management arrangements for the TSO CF. These arrangements are intended to support the framework's continued relevance as power system conditions, operational practices and related reform initiatives evolve.

5.1 Framework stewardship and stakeholder engagement

AEMO will act as coordinator and steward of the framework, facilitating its review and ongoing refinement in consultation with TNSPs, consumers and other relevant stakeholders.

AEMO's stewardship role will include maintaining the published framework materials, coordinating proposed updates and enabling a consistent approach to framework interpretation where common understanding is required. It will also include considering whether additional guidance, templates or examples would support effective application and coordinating engagement on material proposed changes.

Ongoing management of the TSO CF will reflect the collaborative approach used to develop the framework. AEMO may convene an industry working group or similar forum to support future updates, drawing on input from TNSPs and, where appropriate, other stakeholders such as market bodies, industry bodies and consumer representatives.

TNSPs and other stakeholders may propose clarifications, improvements or review matters for AEMO's consideration. AEMO will consider the rationale and materiality of a proposal in determining the appropriate response and engagement process.

Stakeholder engagement will be proportionate to the nature of any proposed change. Minor editorial or administrative updates may be progressed through a streamlined process, while material changes to framework scope, capability definitions, maturity concepts or common operational expectations should be subject to consultation with affected stakeholders.

5.2 Review triggers and update process

The TSO CF will be reviewed periodically to ensure it remains aligned with the operating environment, emerging power system needs, applicable obligations and related policy, regulatory and industry initiatives. Reviews may be aligned with relevant industry planning cycles, major NEM reform milestones or significant changes in operational practice. Potential triggers for review include:

- Material changes to power system security risks
- New or revised operational processes
- Changes to AEMO or TNSP responsibilities
- Outcomes from related reform initiatives
- TNSP or stakeholder proposals to improve the framework
- Findings from framework evaluation (see section 4).



Where updates are required, AEMO will coordinate an appropriate process to consider the proposed change, engage relevant stakeholders, document the rationale for the update and publish revised framework materials where necessary.

Updates should preserve the TSO CF's role as a capability-based and non-prescriptive reference.

5.3 Change control

Version control for this document is maintained on the page following the title page. Future updates should record the version number, release date and a brief description of material changes to support transparency and traceability.

A1. Glossary

This document uses many terms that have meanings defined in the NER. The NER meanings are adopted unless otherwise specified.

Term	Definition
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
CER	Consumer energy resources
EJPC	Executive joint planning committee
ENA	Energy Networks Australia
GPSRR	General power system risk review
NEM	National electricity market
NEMOC	National electricity market operations committee
Framework	Transmission system operational capability framework
NER	National electricity rules
TNSP	Transmission network service provider
TPSS	Transition plan for system security
TSOCF	Transmission system operational capability framework