CutlerMerz

AEMO
AUSTRALIAN ENERGY MARKET OPERATOR

Transmission System Operational Capability Framework (TSOCF)

Stakeholder Reference Group – Session 2 : Briefing

Thursday 16 July 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 Group is proud to have delivered 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.

Read our RAP

Context

PROBLEM STATEMENT

Recent assessments provide a clear and consistent picture of emerging risks to power system security as the NEM transitions to a high renewables, more variable and operationally complex power system

- Strengthening transmission system operational capability is increasingly central to maintaining power system security and reliability as the energy transition accelerates

OBJECTIVE

Develop an industry co-designed framework to strengthen transmission system operational capability

- Provide a considered, consistent and transparent view of the transmission system operational capabilities needed to support the energy transition
- Support AEMO and TNSPs to assess, prioritise and progressively improve operational coordination, capability and maturity

Agenda

01	Purpose & outcomes	CutlerMerz
02	Development process & status	CutlerMerz
03	How the framework will be used	AEMO
04	What we heard & how it shaped the framework	AEMO
05	Draft TSOCF & worked example	AEMO
06	What we need from you	CutlerMerz
07	Timeline & next steps	CutlerMerz
08	Questions & discussion	CutlerMerz
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01 Purpose & outcomes

This session is intended to align on where the draft framework has landed and what feedback is now being requested from the Stakeholder Reference Group.

1 Confirm the framework's status

The framework has progressed from design and engagement into a draft ready for targeted feedback release

2 Show how early feedback has shaped the draft

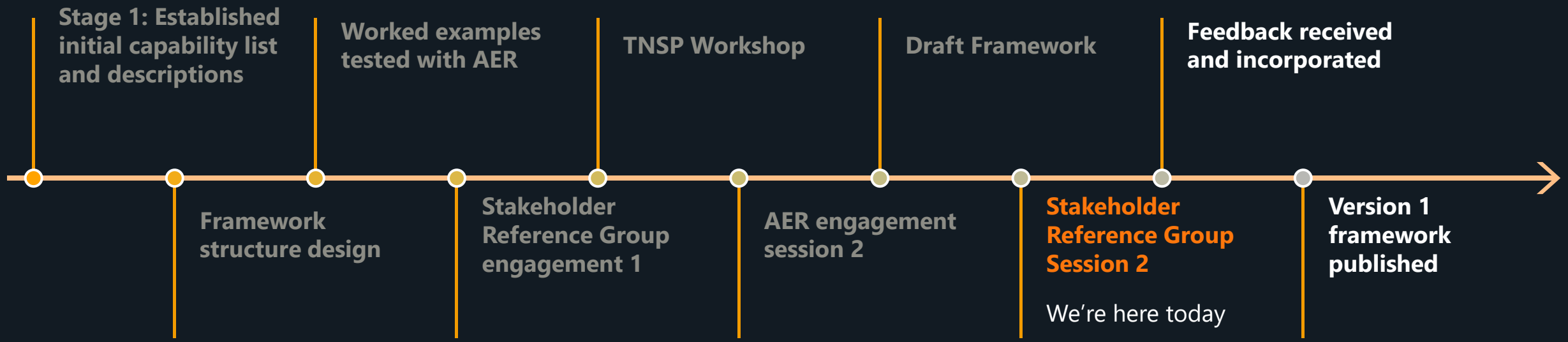
Summarise how feedback from the AER, SRG Session 1 and TNSP engagement has been reflected in the current draft framework

3 Clarify next round of feedback requested

Clarify the format and timing for the feedback expected from this group

02 Development process & status

The framework has progressed through staged development and targeted engagement, and is now moving into a feedback phase



Status

- The draft framework has been developed and refined following SRG, AER and TNSP engagement
- The draft framework is now ready for release for targeted feedback
- Feedback received after this session will inform final refinements before TSOCF version 1 publication
- TSOCF will be reviewed periodically to ensure it remains aligned with the operating environment, emerging power system needs, and related policy, regulatory, and industry initiatives

03 How the framework will be used

The framework is intended to help TNSPs define, test, and verify operational capability needs using a common industry reference point, while preserving existing regulatory decision-making roles.

1 Common capability language

The framework establishes a shared set of clear and consistent operational capabilities that enables alignment between TNSPs, AEMO, the AER and stakeholders.

2 TNSP assessment

TNSPs can use the framework to assess where current operational capabilities are sufficient, where capability uplift may be required, and how those needs align with expected power system conditions

3 Regulatory proposal support

Where a TNSP proposes capability-related expenditure, the framework can help explain the need, the maturity gap, the operational risk being addressed and the evidence supporting the proposed response

4 AER and stakeholder review context

The framework can support clearer discussion of operational capability needs during stakeholder and regulatory review, while preserving the AER's independent decision-making role

The TSOCF supports capability planning and evidence-based discussion. It does not approve expenditure or replace the AER's independent assessment role. It does not add any new obligations, only pulls together existing obligations.

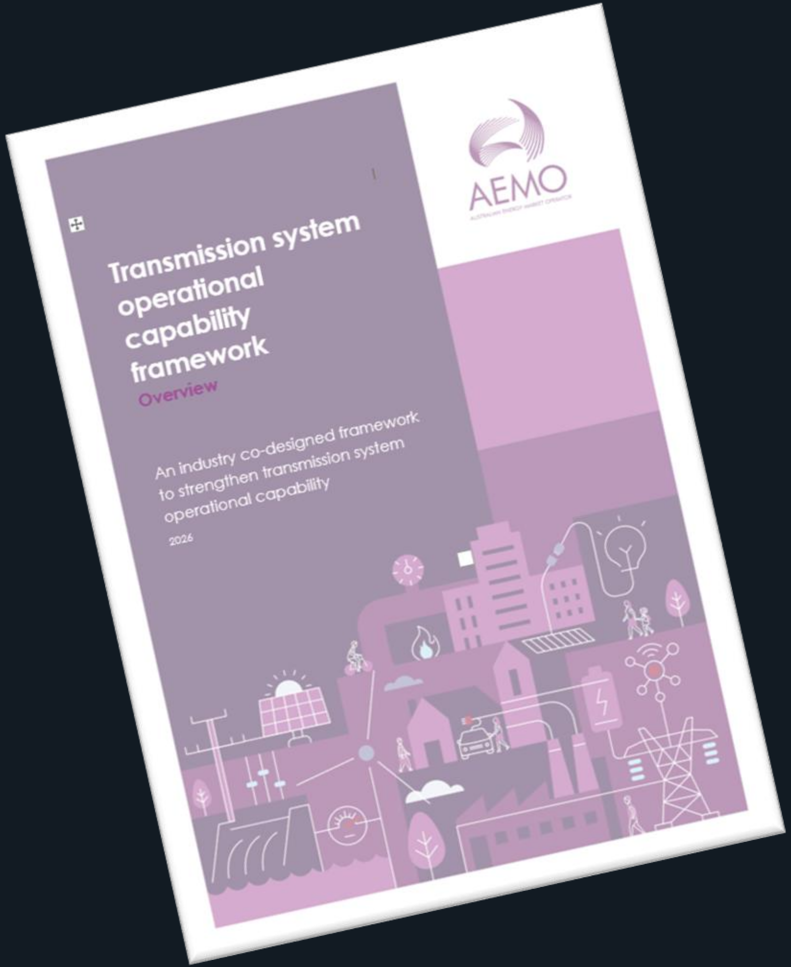
04 What we heard & how it shaped the framework

Stakeholders have supported the direction of the TSOCF and feedback has been incorporated by sharpening capability wording, and consolidating capabilities.

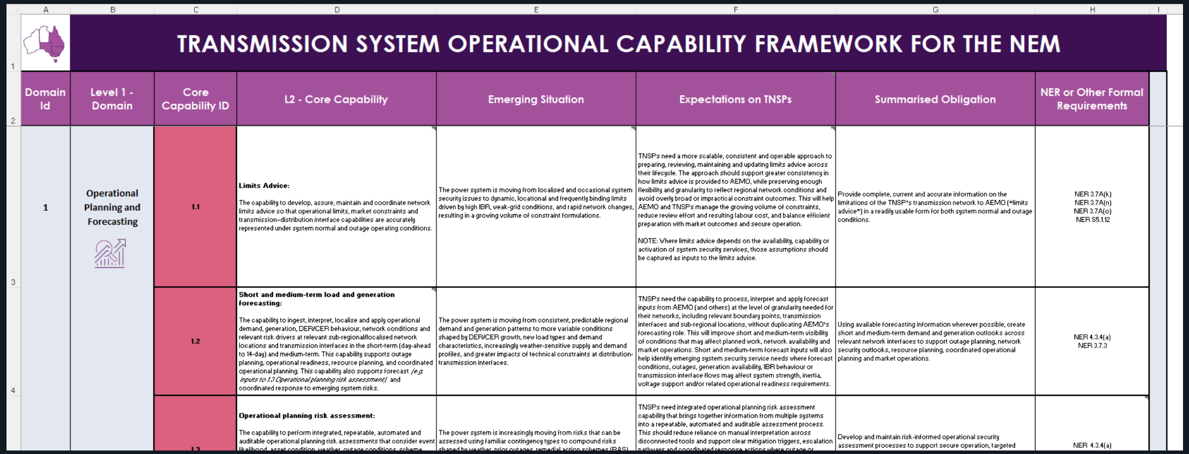
WHAT WE HEARD	HOW THE FRAMEWORK CHANGED
01 The framework needs to be useful and practical and focused on the interests of consumers	**Capability descriptions were rewritten in a common language to focus on outcomes** Descriptions have been refined to explain what capability is required, why it matters, and ensure each capability was appropriately and consistently described with an outcome-based focus based on risks and benefits to consumers
02 Avoid duplication and overlapping capability definitions	**Capabilities were merged or retired where appropriate** Capabilities have been condensed where possible to simplify and reduce overlap between AEMO and TNSPs. Capability duplication is avoided unless there is a clear regulatory or operational need.
03 Capability must be evidence based	**The draft now links capability need to evolving power system conditions** The "emerging situation" and "what is needed" fields have been revised to make the relationship clearer between changing operating conditions, the capability gap and the required maturity uplift
04 Needs to support regulatory use without pre-empting decisions	**Position the TSOCF carefully** The draft supports capability planning and clearer regulatory discussion, while preserving the AER's independent revenue determination and decision-making role

05 DRAFT TSOCF: What it consists of

- Overview document setting out intent, scope, structure & how framework may be used



- Accompanying capability-based assessment framework describing operational capabilities



TRANSMISSION SYSTEM OPERATIONAL CAPABILITY FRAMEWORK FOR THE NEM

Domain Id	Level 1 - Domain	Core Capability ID	L2 - Core Capability	Emerging Situation	Expectations on TNSPs	Summarised Obligation	NER or Other Formal Requirements
1	Operational Planning and Forecasting	1.1	**Limits Advice:** The capability to develop, assure, maintain and coordinate network limits advice so that operational limits, market constraints and transmission–distribution interface capabilities are accurately represented under system normal and outage operating conditions.	The power system is moving from localised and occasional system security issues to dynamic, locational and frequently binding limits driven by high IBR, weak-grid conditions, and rapid network changes, resulting in a growing volume of constraint formulations.	TNSPs need a more scalable, consistent and operable approach to preparing, reviewing, maintaining and updating limits advice across their lifecycle. The approach should support greater consistency in how limits advice is provided to AEMO, while preserving enough flexibility and granularity to reflect regional network conditions and avoid overly broad or impractical constraint outcomes. This will help AEMO and TNSPs manage the growing volume of constraints, reduce review effort and resulting labour cost, and balance efficient preparation with market outcomes and secure operation. NOTE: Where limits advice depends on the availability, capability or activation of system security services, those assumptions should be captured as inputs to the limits advice.	Provide complete, current and accurate information on the limitations of the TNSP's transmission network to AEMO ("limits advice") in a readily usable form for both system normal and outage conditions.	NER 3.7A(k) NER 3.7A(n) NER 3.7A(o) NER S5.1.12
		1.2	**Short and medium-term load and generation forecasting:** The capability to ingest, interpret, localise and apply operational demand, generation, DER/CER behaviour, network conditions and relevant risk drivers at relevant sub-regional/localised network locations and transmission interfaces in the short-term (day-ahead to 14-day) and medium-term. This capability supports outage planning, operational readiness, resource planning, and coordinated operational planning. This capability also supports forecast *(e.g. inputs to 1.3 Operational planning risk assessment)* and coordinated response to emerging system risks.	The power system is moving from consistent, predictable regional demand and generation patterns to more variable conditions shaped by DER/CER growth, new load types and demand characteristics, increasingly weather-sensitive supply and demand profiles, and greater impacts of technical constraints at distribution-transmission interfaces.	TNSPs need the capability to process, interpret and apply forecast inputs from AEMO (and others) at the level of granularity needed for their networks, including relevant boundary points, transmission interfaces and sub-regional locations, without duplicating AEMO's forecasting role. This will improve short and medium-term visibility of conditions that may affect planned work, network availability and market operations. Short and medium-term forecast inputs will also help identify emerging system security service needs where forecast conditions, outages, generation availability, IBR behaviour or transmission interface flows may affect system strength, inertia, voltage support and/or related operational readiness requirements.	Using available forecasting information wherever possible, create short and medium-term demand and generation outlooks across relevant network interfaces to support outage planning, network security outlooks, resource planning, coordinated operational planning and market operations.	NER 4.3.4(a) NER 3.7.3
		1.3	**Operational planning risk assessment:** The capability to perform integrated, repeatable, automated and auditable operational planning risk assessments that consider event	The power system is increasingly moving from risks that can be assessed using familiar contingency types to compound risks	TNSPs need integrated operational planning risk assessment capability that brings together information from multiple systems into a repeatable, automated and auditable assessment process. This should reduce reliance on manual interpretation across disconnected tools and support clear mitigation triggers, escalation	Develop and maintain risk-informed operational security assessment processes to support secure operation, targeted	NER 4.3.4(a)

AEMO Official

05 DRAFT TSOCF Overview Document : Contents

05 DRAFT TSOCF: Worked example

TRANSMISSION SYSTEM OPERATIONAL CAPABILITY FRAMEWORK FOR THE NEM

Level 1 - Domain	Core Capability ID	L2 - Core Capability	Emerging Situation	Expectations on TNSPs	Summarised Obligation	NER or Other Formal Requirements
	2.7	**Operational preparedness and simulation training:** The capability to train, rehearse and assess operator response using realistic simulation of high-impact operating scenarios, abnormal events and emergency conditions, and to translate post-event learning into procedures, tools and competency uplift.	More complex, unusual and fast-moving events are beginning to arise from increasingly complex system conditions including low operational demand, high IBR, protection and RAS interactions, cyber or telemetry disruptions, complicated restoration conditions and in response to major outages. These events may be low probability but have high consequence, requiring faster and better-rehearsed operator response.	TNSP operations staff need realistic simulation training, larger scenario libraries, structured competency development and post-event learning opportunities. This should support increased control-room preparedness for abnormal and emergency conditions while avoiding duplication with any broader workforce capability that is retained elsewhere.	Enhance and maintain control-room preparedness for increasingly complex and low-probability / high-impact events.	NER 4.3.4(a)

Level 1 Capability Domain – **(2) Real-time Network Operations**
Level 2 Core Capability – **(2.7) Operational preparedness and simulation training**

Core Capability

- The capability to train, rehearse and assess operator response using realistic simulation of high-impact operating scenarios, abnormal events and emergency conditions, and to translate post-event learning into procedures, tools and competency uplift.

Emerging Situation

- More complex, unusual and fast-moving events are beginning to arise from increasingly complex system conditions including low operational demand, high IBR, protection and RAS interactions, cyber or telemetry disruptions, complicated restoration conditions and in response to major outages. These events may be low probability but have high consequence, requiring faster and better-rehearsed operator response.

Expectations on TNSPs

- TNSP operations staff need realistic simulation training, larger scenario libraries, structured competency development and post-event learning opportunities. This should support increased control-room preparedness for abnormal and emergency conditions while avoiding duplication with any broader workforce capability that is retained elsewhere.

06 What we need from you

We are seeking focused feedback on whether the draft TSOCF is clear, practical and usable as a shared framework for operational capability planning and evidence-based discussion

FEEDBACK FORMAT

Specific comments on the draft materials

- Comments against particular capability descriptions, terminology, boundaries or guidance notes within the framework spreadsheet
- Comments on the overview document, its structure or content to improve comprehension of the framework

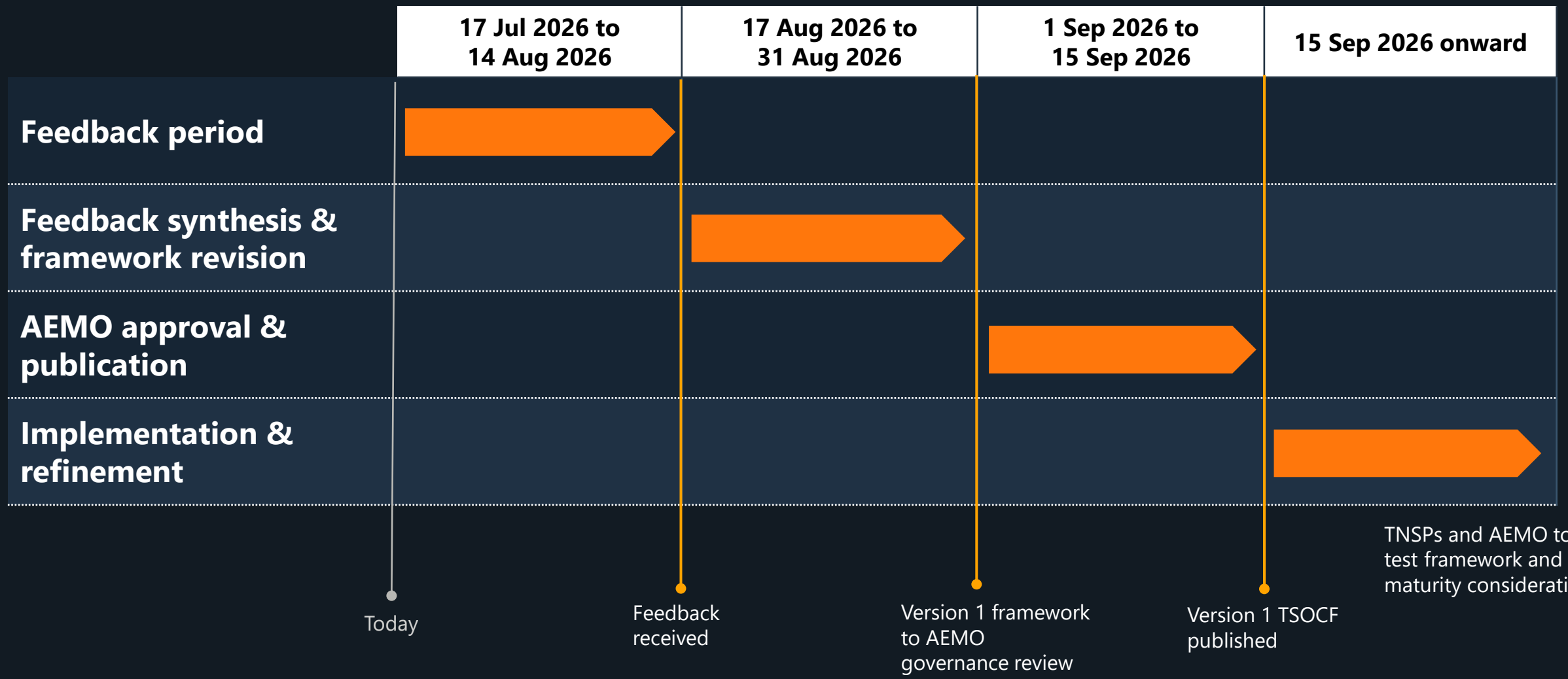
General feedback

- Broader comments on framework usability, regulatory positioning, consumer relevance, clarity of terminology or implementation pathway

FEEDBACK BY FRIDAY 14 AUGUST:

- Written feedback to: operations@aemo.com.au
- Verbal feedback:
  - during this session / briefing, or
  - by requesting a one-on-one feedback meeting with AEMO and CutlerMerz team.

07 Timeline & next steps



08 Questions & discussion

Any questions, comments, early feedback?

Appendix A

AEMO COMPETITION LAW: MEETING PROTOCOL

AEMO Competition Law - Meeting Protocol

AEMO is committed to complying with all applicable laws, including the Competition and Consumer Act 2010 (CCA). In any dealings with AEMO regarding proposed reforms or other initiatives, all participants agree to adhere to the CCA at all times and to comply with this Protocol. Participants must arrange for their representatives to be briefed on competition law risks and obligations.

Participants in AEMO discussions **must**:

- Ensure that discussions are limited to the matters contemplated by the agenda for the discussion
- Make independent and unilateral decisions about their commercial positions and approach in relation to the matters under discussion with AEMO
- Immediately and clearly raise an objection with AEMO or the Chair of the meeting if a matter is discussed that the participant is concerned may give rise to competition law risks or a breach of this Protocol

Participants in AEMO meetings **must not** discuss or agree on the following topics:

- Which customers they will supply or market to
- The price or other terms at which Participants will supply
- Bids or tenders, including the nature of a bid that a Participant intends to make or whether the Participant will participate in the bid
- Which suppliers Participants will acquire from (or the price or other terms on which they acquire goods or services)
- Refusing to supply a person or company access to any products, services or inputs they require

Under no circumstances must Participants share Competitively Sensitive Information. Competitively Sensitive Information means confidential information relating to a Participant which if disclosed to a competitor could affect its current or future commercial strategies, such as pricing information, customer terms and conditions, supply terms and conditions, sales, marketing or procurement strategies, product development, margins, costs, capacity or production planning.