AUSTRALIAN ENERGY MARKET COMMISSION

RULE

TRANSITIONAL SERVICES UPDATE PAPER

National Electricity Amendment (Improving security frameworks for the energy transition) Rule 2024

Proponents

Hydro Tasmania
Delta Electricity

14 December 2023

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About the AEMC

The AEMC reports to the energy ministers. We have two functions. We make and amend the national electricity, gas and energy retail rules and conduct independent reviews for the energy ministers.

Acknowledgement of Country

The AEMC acknowledges and shows respect for the traditional custodians of the many different lands across Australia on which we all live and work. We pay respect to all Elders past and present and the continuing connection of Aboriginal and Torres Strait Islander peoples to Country. The AEMC office is located on the land traditionally owned by the Gadigal people of the Eora nation.

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Summary

1 This paper is an update to the 2023 directions paper for the *Improving security frameworks for the energy transition* rule change. This paper sets out a revised transitional non-market ancillary services (NMAS) framework for stakeholder feedback. We propose two changes since the design set out in the directions paper:

1. refinements to the design of the framework by introducing two different contract types that reflect the dual aspects of the framework
2. the introduction of a transition plan for system security that outlines the steps the Australian Energy Market Operator (AEMO) will take through the transition.

2 This rule change is considering options to improve current market arrangements for the provision of security services. In the directions paper, the Commission proposed five key areas of reform to improve our long-term security frameworks and address security needs through the transition:

1. aligning the existing inertia and system strength frameworks
2. removing the exclusion to procuring inertia network services and system strength in the network support and control ancillary service (NSCAS) framework
3. empowering AEMO to enable (or 'schedule') security services with a whole-of-national electricity market (NEM) perspective
4. improving directions transparency and compensation
5. creating a new transitional NMAS framework for AEMO to procure security services necessary for the energy transition.

3 The Commission received feedback on its directions paper on all five of those key areas.

4 In relation to the first four key areas (which are summarised further in appendix A), the Commission generally received endorsement of its proposed direction, although numerous suggestions to refine the proposals. The Commission is currently working through this feedback to refine the proposed framework. We are doing this via the technical working group (TWG) for this rule change, working closely with the market bodies, and bilateral meetings.

5 On the issue of improving directions compensation (which is a subset of key area four), following feedback from stakeholders, the Commission noted there was strong support for considering changes to the directions compensation framework as part of a larger review. Consequently, the issue of directions compensation will no longer be considered in this project, but instead through the Commission's review of electricity compensation frameworks.

6 In contrast to the above, submissions to the directions paper expressed mixed responses to the transitional NMAS framework (key area five). There was a general acceptance of the need for the framework, but significant concern on its design features, particularly the 10-year sunset clause.

7 Some stakeholders were also concerned that the creation of the transitional services framework signals a reduction in the Commission's conviction that security services are best unbundled and procured through discrete mechanisms.

8 This update paper proposes further refinements to the 'transitional services framework' proposed in the directions paper, as well as a new report: the transition plan for system security. These proposals respond to significant stakeholder feedback on the transitional services framework in submissions to the directions paper.

9 We are seeking stakeholder feedback on the updated proposals with regard to the transitional services framework and the addition of the transition plan for system security.

10 The Commission is not, through this paper, seeking feedback on the wider policy areas set out in the directions paper. As noted above, the Commission is currently working through feedback on these positions with stakeholders.

We proposed an NMAS framework to support power system security

11 The directions paper outlined a new NMAS framework that could support AEMO in managing power system security.

12 Using this framework, AEMO would be able to procure for known security needs that are not captured in an existing planning framework, as well as trial the capability of new technologies to provide security services in a low- or zero-emissions power system.

13 It was proposed to fill a gap in security procurement and reduce the reliance on intervention tools such as directions to maintain a secure system. The framework would only be used to procure system security needs that are not captured in existing frameworks. AEMO would be required to outline its reasons for procuring these needs and would be required to outline the ongoing cost and services procured in the new framework each year. The new framework would sunset after 10 years, with the AEMC reviewing its effectiveness after seven years.

14 Submissions to the directions paper expressed mixed responses to the overall design of the framework. There was a general acceptance of the need for the framework, but significant concern on its design features, particularly the 10-year sunset clause.

15 The Commission does not consider the proposed transitional services framework to be irreconcilable with the development of unbundled and discrete procurement arrangements for other security services. Instead, the Commission will continue investigating if alternate procurement routes for specifiable security services are technically feasible and economically advantageous on a case-by-case basis.

We are proposing to refine the design of the transitional services framework

16 Following analysis and stakeholder feedback, we are proposing to further refine the design of the transitional services framework.

17 The changes would introduce two contract types that reflect the dual aims of the framework:

- Type 1: Contracts for services that meet critical and immediate security needs of the power system.
- Type 2: Trials to manage security in a low- or zero-emissions power system.

18 Each contract type would have a specific expiry/sunset and contract length to better reflect their respective objectives.

19 AEMO could enter into **type 1** contracts for up to three years, with the procurement power expiring after five years. The Commission considers that this balances the need for certainty amongst industry, the pace at which power system understanding is evolving, and the efficiency in multi-year contracts. AEMO would not be able to enter into contracts past the five-year expiry.

20 AEMO could enter into **type 2** contracts for up to 10 years, with the framework sunsetting after 10 years. We consider that the longer contract length for these contracts would support investment in resources required to manage system security in a low- or zero-emissions power system and aligns with feedback received through the directions paper.

21 We are also proposing to require AEMO to consider emissions in its procurement decisions. This follows stakeholder feedback that the framework as proposed in the directions paper did not

incentivise the uptake of low-emission resources or new technologies to enter the system before existing plant retires.

22 In addition, we are proposing explicit reporting requirements on the outcomes of trials procured through type 2 contracts. We consider this would support broader industry understanding and insights into how security will be managed throughout the transition. Considered together, these changes would incentivise the uptake of resources with the necessary capabilities before existing units exit.

We are proposing AEMO publish a transition plan for system security

23 In addition to the transitional services framework, we are proposing AEMO develop and publish a transition plan for system security. This would be a new reporting requirement that was not proposed in the directions paper.

24 We consider this report is needed to ensure industry is well-informed about:

- how AEMO is planning to meet the security needs of the power system through the transition to a low- or zero-emissions system, and
- the current technical understanding of system security and work to improve this understanding and specify services.

25 This plan would help to provide investment signals to support investment in the right resources and capabilities needed to manage a secure system, before existing plant retires.

26 This also responds to strong concerns from stakeholders that there is not enough transparency on the services AEMO requires to manage power system security and the progress made in maintaining system security at higher levels of instantaneous renewable energy.

27 To promote collaboration and industry-wide learning, the Commission is also proposing that AEMO would be required to publish a draft plan, which it would engage with the Reliability Panel on, as it does with other security reports. We also expect that AEMO would undertake stakeholder consultation before the final plan is published.

28 The transition plan for system security would be published every two years, with the draft plan published in the alternate years. We are also proposing the trial learnings be published as an addendum to this plan.

Submissions are due by 1 February 2024

29 We are seeking feedback on the updated proposals outlined in this paper.

30 **Due date:** written submissions to this update paper must be lodged with the Commission by **5pm, 1 February 2024.**

31 How to make a submission: Go to the Commission's website, www.aemc.gov.au, find the "lodge a submission" function under the "Contact Us" tab, and select the project reference code ERC0290.[1]

32 Tips for making submissions on rule change requests are available on our website.[2]

33 We are not seeking feedback on the broader policy positions being considered through this rule change. These positions are currently being considered following feedback to the 2023 directions paper, including through ongoing TWGs and bilateral discussions.

1 If you are not able to lodge a submission online please contact us and we will provide instructions for alternative methods to lodge the submission.

2 See https://www.aemc.gov.au/our-work/changing-energy-rules-unique-process/making-rule-change-request/submission-tips

Next steps

34 The Commission will release a final determination in March 2024. This will consider all policy positions as outlined in the directions paper, as well as any updates to the transitional services framework and security transition plan following this consultation.

For more information, you can contact us

35 Please feel free to contact the project leader with questions or feedback at any stage:

- Project leader: Amy Wiech
- Email: amy.wiech@aemc.gov.au

Full list of consultation questions

Question 1: Contract types

Do you consider that the revised arrangements for type 1 and type 2 contracts provide adequate investment certainty for new technologies and better reflect the new NEO and the pace at which system understanding is progressing?

Question 2: Design changes

Are there any further amendments to the transitional services framework you consider are needed?

Question 3: Transparency

Do you consider the transition plan for system security would improve transparency on long term security needs?

Question 4: Transition plan for system security

Is there anything missing from the transition plan for system security that is needed to further promote investment signals and increase transparency on security needs?

How to make a submission

We encourage you to make a submission

Stakeholders can help shape the solutions by participating in the rule change process. Engaging with stakeholders helps us understand the potential impacts of our decisions and, in so doing, contributes to well-informed, high quality rule changes.

We have included questions in each chapter to guide feedback, and the full list of questions is above. However, you are welcome to provide feedback on any additional matters that may assist the Commission in making its decision.

How to make a written submission

Due date: Written submissions responding to this consultation paper must be lodged with Commission by **1 February 2024**.

How to make a submission: Go to the Commission's website, www.aemc.gov.au, find the "lodge a submission" function under the "Contact Us" tab, and select the project reference code **ERC0290**.[3]

Tips for making submissions are available on our website.[4]

Publication: The Commission publishes submissions on its website. However, we will not publish parts of a submission that we agree are confidential, or that we consider inappropriate (for example offensive or defamatory content, or content that is likely to infringe intellectual property rights).[5]

For more information, you can contact us

Please contact the project leader with questions or feedback at any stage.

Project leader:	Amy Wiech
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Telephone:	(02) 8296 0684

3 If you are not able to lodge a submission online, please contact us and we will provide instructions for alternative methods to lodge the submission.

4 See: https://www.aemc.gov.au/our-work/changing-energy-rules-unique-process/making-rule-change-request/submission-tips

5 Further information is available here: https://www.aemc.gov.au/contact-us/lodge-submission

Contents

1 The proposed transitional services framework would contribute to the energy objectives

Box 1: Key points

- This paper provides an update to the Commission's 2023 directions paper for the *Improving security frameworks for the energy transition* ('Improving security frameworks') rule change.
- We have set out a revised proposal for the transitional non-market ancillary service (NMAS) framework in response to stakeholder feedback and analysis for further comment. The other elements of the improving security frameworks paper are not discussed in this paper and are being refined through our technical working group (TWG) and bilateral meetings.
- The directions paper proposed that the Australian Energy Market Operator (AEMO) could use the framework to:
  - procure for known security needs that are not captured in an existing planning framework, and
  - trial the capability of new technologies to provide security services in a low- or zero-emissions power system.
- We received mixed stakeholder feedback, with a broad understanding of the need for the framework but concern about the design of the proposed transitional arrangements and progress towards unbundling services.
- We are seeking further stakeholder feedback on this element of the *Improving security frameworks* project.
- Submissions on this paper are due **1 February 2024.**
- The final determination will be published on 28 March 2024.

1.1 Our directions paper set out improvements to security frameworks to promote the secure transition to a net-zero energy system

1.1.1 The Improving security frameworks rule change focuses on improving long-term security planning frameworks

The 2023 directions paper for this rule change set out our direction — accompanied by proposed rule drafting — to build on existing tools in the power system to allow direct procurement of system security more quickly and easily. This approach would address system security issues through the transition, reduce the regular and inefficient use of directions, and provide better incentives for participants to invest in providing system security in the longer term.

This revised direction addressed stakeholder feedback to the prior draft determination and recognised that it is necessary to establish a greater understanding of the engineering and technical capabilities of the system before introducing complex market changes. Therefore, it was better to focus on building and expanding our existing security frameworks that procure security services such as system strength, inertia and network support and control ancillary services (NSCAS), to assist through the transition.

The revised direction set out five key areas of reform:

1. aligning the existing inertia and system strength frameworks

2. removing the exclusion to procuring inertia network services and system strength in the NSCAS framework
3. empowering AEMO to enable (or 'schedule') security services with a whole-of-national electricity market (NEM) perspective
4. improving directions transparency and compensation
5. creating a new transitional NMAS framework for AEMO to procure security services necessary for the energy transition.

Considered together, these solutions focused on addressing the needs of the power system today and supporting power system security through the transition to a system that can operate at times when all load is met by inverter-based resources (IBR). The solutions were proposed to be able to adapt as the needs of the power system, and our understanding of it, develop in the longer term.

Box 2: The Commission proposed a new NMAS framework to help keep the system secure through the transition

The fifth area of reform set out in the 2023 directions paper is a new NMAS framework for 'transitional services'. This is the focus of this paper. The framework would allow AEMO to:

- procure to meet system security needs that are related to the system transition and not captured in existing planning frameworks, and
- trial the capability of new technologies to provide security services in a low- or zero-emissions power system.

The transitional services framework would therefore allow AEMO to procure specific security services for known configurations that are needed to maintain power system security, rather than relying on directions. This framework would be transitional because it would enable AEMO to procure these configurations until engineering capabilities develop to understand the security capabilities of the new generation mix.

The transitional services framework could also be used by AEMO to trial how newer technologies could contribute to system security.

Further details can be found in appendix A *and chapter four of the 2023 directions paper.*

The Commission received feedback on its directions paper on all five of those key areas.

In relation to the first four key areas (which are summarised further in appendix A), the Commission generally received endorsement of its proposed direction, although numerous suggestions to refine the proposals. The Commission is currently working through this feedback to refine the proposed framework. We are doing this via the TWG for this rule change, working closely with the market bodies, and bilateral meetings.

On the issue of improving directions compensation (which is a subset of key area four) following feedback from stakeholders, the Commission noted there was strong support for considering changes to the directions compensation framework as part of a larger review. Consequently, the issue of directions compensation will no longer be considered in this project, but instead through the Commission's review of electricity compensation frameworks.[6]

6 See: Review into electricity compensation frameworks | AEMC

In contrast to the above, submissions to the directions paper expressed mixed responses to the transitional NMAS framework (key area five). There was a general acceptance of the need for the framework, but significant concern on its design features, particularly the 10-year sunset clause.

Some stakeholders were also concerned that the creation of the transitional services framework signals a reduction in the Commission's conviction that security services are best unbundled and procured through discrete mechanisms. The Commission still recognises there are efficiency benefits in individually valuing and procuring security services; however, given the current reality of system needs, this is not yet feasible in practice. For more details on the issues raised through submissions see chapter 2.

1.2 This paper seeks feedback on an updated direction for transitional services

This paper follows feedback to the directions paper that additional consultation is required to work through issues raised in submissions prior to a final determination.

We are seeking feedback on the specific design changes to the transitional services framework.

The Commission is not, through this paper, seeking feedback on the first four policy areas set out above that are also being considered through the *Improving security frameworks for the energy transition* (ISF) rule change. These positions are currently being considered following feedback to the 2023 directions paper, including through ongoing TWG meetings and bilateral discussions.

The Commission will release a final determination for this rule change in March 2024.

1.3 The Commission must act in the long-term interests of consumers

The Commission is bound by the National Electricity Law (NEL) to only make a rule if it is satisfied that the rule will, or is likely to, contribute to the achievement of the national electricity objective (NEO).[7]

The NEO is:[8]

> to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to—
>
> (a) price, quality, safety, reliability and security of supply of electricity; and
>
> (b) the reliability, safety and security of the national electricity system; and
>
> (c) the achievement of targets set by a participating jurisdiction—
>
> (i) for reducing Australia's greenhouse gas emissions; or
>
> (ii) that are likely to contribute to reducing Australia's greenhouse gas emissions.

The targets statement, available on the AEMC website, lists the emissions reduction targets to be considered, as a minimum, in having regard to the NEO.[9]

When considering whether the final rule will, or is likely to, contribute to the achievement of the NEO, the Commission will consider the system services objective outlined in section 1.3.1 and the

7 Section 88 of the NEL.
8 Section 7 of the NEL.
9 Section 32A(5) of the NEL.

assessment principles outlined in section 1.3.2 as well as any other factors that it considers relevant.

1.3.1 The Commission is considering the system services objective

The system services objective was set out in the consultation paper and draft determination, and has been developed by the Commission in relation to assessment of system services rule changes. It is set out in Box 3 below and reflects the trade-offs that are expected when considering issues related to the provision of system services.

The system services objective seeks to:

Box 3: The system services objective

Establish arrangements to optimise the reliable, secure and safe provision of energy in the NEM, such that is it provided at efficient cost to consumers over the long-term, where 'efficient cost' implies the arrangements must promote efficient:

- short-run operation of,
- short-run use of,
- longer-term investment in, generation facilities, load, storage, networks (i.e. the power system) and other system service capability, in the context of the transition to a net zero system.

Efficient short-run operation refers to factors associated with the ability of the service design option to achieve an optimal combination of inputs to produce the demanded level of the service at least cost i.e. for a given level of output, the value of those resources (inputs) for this output are minimised.

Efficient short-run use refers to factors associated with the ability of a service design option to allocate limited resources to deliver a service, or the right combination of services, according to consumer preferences or system need.

Efficient longer-term investment refers to factors associated with the ability of the service design option to continue to achieve allocative and productive efficiencies over time. This means developing flexible market and regulatory frameworks, that can adapt to future changes

1.3.2 The Commission is considering the transitional services framework against the assessment criteria

The Commission has identified the following criteria to assess whether the proposed rule change, no change to the rules (business-as-usual), or other viable, rule-based options are likely to better contribute to achieving the NEO:[10]

- **Safety, security and reliability** — the operational security of the power system relates to the maintenance of the system within pre-defined limits for technical parameters such as voltage and frequency. System security underpins the operation of the energy market and the supply of electricity to consumers.
- **Emissions reduction** — the market and regulatory arrangements for system security should efficiently contribute to the achievement of government targets for reducing, or that are likely to reduce, Australia's greenhouse gas emissions.

10 The wording of these criteria has been updated to reflect the Commission's standardised approach to assessment criteria.

- **Principles of market efficiency** — the market and regulatory arrangements should create more appropriate arrangements than directions for those participants whose presence is needed to maintain a secure operating envelope.
- **Implementation considerations**— regulatory change typically comes with some implementation costs for regulators, the market operator and/or market participants. These costs are ultimately borne by consumers. The cost of implementation should be factored into the overall assessment of any change. Increased complexity comes with increased costs, and therefore the level of complexity of regulatory change should be justified by the benefits achieved.
- **Principles of good regulatory practice** — the market and regulatory arrangements for system security should promote transparency and be predictable, so that market participants can make informed and efficient investment and operational decisions. Regulatory arrangements must also be flexible to changing market and external conditions, to remain effective in achieving security outcomes over the long-term. Where practical, regulatory or policy changes should not be implemented to address issues that arise at a specific point in time.

An explanation of how the Commission's proposals in this paper promote the assessment criteria is discussed in section 2.4.

For a detailed overview and rationale of our assessment criteria see chapter one of the 2023 directions paper.

2 The Commission is consulting on a revised transitional services proposal which aims to address stakeholder feedback

Box 4: Key points

- In August 2023, we sought feedback on a new NMAS framework proposed to:
  - procure secure configurations that provide system security throughout the transition to low- or zero-emissions power system and are not able to be procured through existing planning frameworks
  - trial new technologies capable of providing security services and facilitating the secure transition of the power system.
- AEMO's procurement under the transitional services framework was to be limited to services not covered by other planning timeframe frameworks and subject to clear transparency requirements. The directions paper proposed that the transitional services framework would sunset after 10 years.
- We received mixed stakeholder feedback. Most stakeholders broadly accepted the need for an additional framework to fill a gap in existing security frameworks, but there was concern about the design of the proposed transitional arrangements.
- Stakeholders also supported more dedicated arrangements to progress unbundled security services, particularly by requiring AEMO to define services procured through the framework.
- Several stakeholders noted concern about the lack of incentives for AEMO to use the trial aspect of the framework and were apprehensive about the length of the sunset period, suggesting it may lock in unit configurations for longer than necessary.
- Following stakeholder feedback and further analysis, we are proposing to:
  - revise the design of the **"transitional services framework"** to address key areas of feedback in response to the directions paper — by introducing two different contract types that reflect the dual aspects of the framework
  - introduce a **"transition plan for system security"** that outlines the steps AEMO will take to manage system security through the transition.
- The revisions to the transitional services framework would introduce two contract types, each with a specific objective, expiry/sunset period, and contract length.
- For **type 1** contracts, AEMO would be able to enter into contracts to meet critical and immediate security needs of the power system.
  - These contracts would be for a maximum of three years.
  - AEMO's procurement power for these contracts would expire after five years. AEMO would not be able to enter into any type 1 contract after the five-year expiry.
- For **type 2** contracts, AEMO would be able to enter into contracts to trial new technologies to understand and test how it can manage security in a low- or zero-emissions power system.
  - These contracts would be for a maximum of 10 years.

- The transitional services framework would sunset after 10 years. AEMO would not be able to enter into type 2 contracts that extend beyond the sunset period.
- In addition, the framework would require AEMO to consider emissions reduction in its procurement options, which it would need to weigh against both the cost of these contracts and the security needs of the power system.
- We are also proposing additional reporting obligations on the trial aspect of the framework, to promote transparency and industry-wide learnings on the security needs of the power system as we transition.
- The Commission is also proposing to introduce a new "**transition plan for system security**".
- This report would support transparency of, and investment in, resources needed to manage system security in the longer term.
- To promote collaboration and industry-wide learning, the Commission is also proposing AEMO would publish a draft plan, which it would engage with the Reliability Panel (the Panel) on, as it does with other security reports.
- We also expect that AEMO would undertake stakeholder consultation before the final report is published.
- We are seeking feedback on these two refinements to the proposal.

This section outlines stakeholder feedback to the directions paper and proposed changes to the transitional services framework including:

- Section 2.1 — the revised transitional services framework and the addition of a transition plan for system security would help manage and support security through the transition
- Section 2.2 — there was mixed feedback on the design features of the framework including contract length and emissions reduction
- Section 2.3 — we are proposing a transition plan for system security
- Section 2.4 — the Commission considers the transitional services framework and the introduction of a transition plan for system security promote the assessment criteria.

2.1 The revised transitional services framework and the addition of the transition plan for system security would help manage and support security through the transition

Submissions to the directions paper expressed mixed responses to the overall design of the framework. Some stakeholders considered there was a greater need for the framework to promote the secure decarbonisation of the electricity system and facilitate the unbundling of security services.[11]

Several stakeholders supported the proposal that AEMO procure transitional services to ensure that the system remains secure while completing studies on the wider unbundling of security services.[12] For example, Iberdrola said that:[13]

11 This includes submissions to the 2023 directions paper, EnergyAustralia (pp. 1-2), Ergon Energy (p. 2), AEC (p. 4), Snowy Hydro (p. 4), Stanwell (p. 3), CS Energy (p. 2), CEC (pp. 1-2), Delta (p. 1), Iberdrola (pp. 2-3), AGL (pp. 2-3).

12 Origin (p. 2), AER (p. 3), Iberdrola (p. 2), ENA (p. 1), submissions to the directions paper.

13 Iberdrola (p. 2) submission to the directions paper.

In the near-term, the complexity of the power system may require AEMO to procure combinations of units to be confident of system security while they undertake further studies on unbundling system services.

The Commission considers that there is still a need for a transitional services framework, to both address gaps in the procurement of security services and to build understanding of how to operate a low- or zero-emissions system securely.

This means there are two objectives of the framework — consistent with the proposal in the directions paper.

The first objective would be to allow AEMO to procure security services that are not able to be procured through an existing planning framework. Existing planning frameworks cover most of the NEM's security needs. However, there is a range of security needs that are not specifically defined and therefore not able to be planned for and procured through an explicit framework (discussed more in appendix A).

The second objective would be to support AEMO in building its understanding and confidence in how it can manage security in a low- or zero-emissions system. AEMO could contract with emerging technologies with the purpose of trialling these resources to gain operational experience on how it intends to manage system security when existing, emissions-intensive resources retire (discussed more in section 2.2.5).

Following further analysis and consideration of stakeholder feedback, the Commission is proposing to:

1. revise the design of the **"transitional services framework"** to address key areas of feedback in response to the directions paper (see section 2.2) by introducing two different contract types that reflect the dual aspects of the framework
2. introduce a **"transition plan for system security"** that outlines the steps AEMO will take to manage security through the transition (see section 2.3).

A summary of these proposals is outlined in Table 2.1 below and discussed further below.

Table 2.1: Comparison between directions paper and update paper proposals

Directions paper	Update paper
Transitional services framework	
Design: the design features (including objective, sunset period/expiry and contract length) of the transitional services framework would apply to both contract types, regardless of what service the contract was procuring for.	**Design:** divide the framework into two contract types, each with a specific objective, contract length and sunset/expiry date (see below).
Objective: give AEMO the power to acquire transitional services where the service: • is needed to maintain power system security and no other planning framework applies, or • is part of a trial for testing new ways of maintaining power system security	**Objective:** Both contract types aim to meet security needs of the system through the transition, with explicit objectives for each. **Type 1:** procure system services to meet critical and immediate security needs of the power system, where no other planning framework applies.

Directions paper	Update paper
with the aim for AEMO to transition away from reliance on the number of synchronous generating units required to maintain power system security.	**Type 2:** enter contracts with emerging technologies with the purpose of trialling these resources to develop AEMO's understanding of managing security in a low- or zero-emissions system.
Contract length: All contract types would be for a maximum of three years.	**Type 1:** up to three years. **Type 2:** up to 10 years.
Sunset period: a 10-year sunset clause for all contract types.	**Type 1:** AEMO's ability to enter into type 1 contracts would expire after **five years.** AEMO would have the ability to enter into these contracts within the five-year period (for a maximum of three years). AEMO would not be able to enter into any type 1 contract after the five-year expiry. **Type 2:** the entire transitional services framework would sunset after **10 years.** AEMO would not be able to enter into type 2 contracts that extend beyond the sunset period. Note: a rule change would be required to extend either the type 1 expiry period or the sunset period for the entire framework.
Review: the AEMC would undertake a review of the transitional services framework at year 7 to assess whether the framework is meeting its intended objective and whether the framework is needed beyond the sunset period. Note: this is consistent with the proposed review in the directions paper — although the review of the new proposed arrangements would only apply to type 2 contracts (trials) given the type 1 contracting power is proposed to expire earlier.	
Emissions reduction: the framework did not propose any explicit emission reduction arrangements in the directions paper.	**Emissions reduction:** AEMO would need to consider emissions reduction in its assessment of contract options for both type 1 and type 2 contracts, to ensure the framework complements the NEM's overall emission reduction goal. • AEMO would set out in the transitional services guideline how it intends to weigh emissions reductions against both the cost of these contracts and the security needs of the power system. • As discussed below, AEMO would also be required to report annually how its contracting processes and outcomes are contributing to emissions reductions.
Transparency:	**Transparency:** we are proposing to retain the transparency arrangements outlined in the

Directions paper	Update paper
• Transitional services guideline: outline of the procurement process. • Statement of security needs: for each procurement activity, a statement outlining the security need, expected duration, intended procurement process and why no other procurement framework applies. • Transitional services annual report: a description of the type and costs of services procured through the framework.	directions paper with two additions: • explicit reporting arrangements on the trial outcomes procured through type 2 contracts (discussed further in the transition plan for system security below) • outline how AEMO's contracting decisions are contributing to emissions reduction in the transitional services annual report.
Commencement: consistent with the directions paper, we propose that AEMO would be able to enter either type 1 or type 2 contracts after it publishes the transitional services procurement guideline.	
Transition plan for system security	
This would be a new reporting requirement that was not proposed in the directions paper.	**Purpose:** AEMO would outline the steps it is undertaking to manage system security as the power system transitions to net zero. This would support industry understanding of: • how AEMO is planning to meet the security needs of the power system through the transition to a low- or zero-emissions system, and • the current technical understanding of system security and work to improve this understanding and specify services.
	Content: • An outline of AEMO's **current understanding** of security services and any current or planned work towards **refining security service specifications**. • Any **operational metrics** AEMO uses, or is developing, to manage security. • A detailed description of **AEMO's long-term plan to manage security** and the work it is doing to address system security challenges as we transition. • The **required capabilities or new entrant resources** that could participate in managing system security (this should also be done in conjunction with TNSPs). • A plan for how AEMO intends to **move away from using** the transitional services framework (for example, whether AEMO

Directions paper	Update paper
	would procure security services from newer technologies that are not currently being used in unit configurations) • The **outcomes and learnings from the trials** conducted through type 2 contracts.
	Consultation: • AEMO would publish a draft of the plan and engage with the Reliability Panel on the report. • We also expect that AEMO would engage with industry on the report. • The outcomes of trials from type 2 contracts would need to be published as an addendum to the transition plan for system security.
	Publication: final plan published every two years.

Source: AEMC

2.2 There was mixed feedback on the design features of the framework, including contract length and emissions reduction

Stakeholders had mixed feedback on the length of transitional services framework contracts. Some stakeholders considered that up to three years was appropriate.[14] Snowy Hydro considered that:[15]

> If the Commission's proposal is expected to have a transition period of ten years then the contract duration should be less than three years so participants can understand the changes being made.

Other stakeholders thought that the framework should be divided into two contract types.[16] The CEC suggested that the framework be divided into two contract types. For type 1 "synchronous combination contracts":[17]

> We consider these should be awarded for short tenors, likely no longer than 3.5 years (the time of the notice of closure requirements).

For the second type of contract, the "new technology contracts", the CEC recommended:[18]

> Longer tenors, reflecting 1) the likely timeframes associated with moving to a fully unbundled ancillary service market, and 2) the need to provide meaningful signals to

14 Snowy Hydro (p. 2), CS Energy (p. 6), in submissions to the directions paper.
15 Snowy Hydro (p. 2), submission to the directions paper.
16 Iberdrola (p. 2), CEC (p. 3), submission to the directions paper.
17 CEC (pp. 11-12), submission to the directions paper.
18 CEC (p. 12), submission to the directions paper.

> support investment in new technologies that may be further up the cost curve. We therefore consider that a tenor greater than three years would be desirable - up to a length of 10 years would be appropriate.

Iberdrola similarly noted the framework should be divided into two contract types, differentiated by emissions. Iberdrola considered the framework should consider emissions and that:[19]

> Any contracts with emissions intensive units under the NMAS should be short-duration (one year, with annual renewal) to avoid barriers to entry for new low emissions resources. Given the uncertainty and information asymmetry, contracts with low emissions resources or with new transmission investment may need to be longer duration to support investment and timely entry.

2.2.1 Some stakeholders thought there needed to be clearer prescription and transparency on the trial aspect of the framework

Some stakeholders also considered that the trialling component of the framework could help deploy new technologies that may be crucial in operating the system with high penetrations of renewable energy, if they were accompanied with clearer requirements or incentives for AEMO to use this part of the framework and greater transparency on its outcomes.[20] Global Power Energy (GPE) contended that the trial component did not sufficiently require AEMO to implement trials and that the new framework could result in:[21]

> Somewhat of a missed opportunity, as AEMO is not obligated to use the NMAS framework for trials and the experimental sandbox concept.

2.2.2 Most stakeholders had concerns with the proposal to sunset the framework after 10 years

Tied to concerns surrounding unbundling, most stakeholders viewed the proposed sunset period of 10 years as too long and an impediment to the continued unbundling of security services.[22] Instead, many proposed a sunset of three years, for example, EnergyAustralia commented that:[23]

> If the AEMC wishes to prescribe a sunset clause, efforts to commence unbundling of ESS (such as inertia) via spot market should take no more than 3 years. The AEMC should undertake a review to assess AEMO's performance against the transitional pathway at the end of each year.

Similarly, the CEC considered that contracts for synchronous combinations should be limited in tenor and scope, however, the submission noted that longer term contracts could be warranted in case of the deployment of new zero-carbon technologies given the need for greater investment certainty.

In contrast, AEMO's submission argued that the need for the transitional arrangements may extend beyond the proposed 10-year sunset period, noting that:[24]

19 Iberdrola (p. 4), submission to the directions paper.

20 This includes CS Energy (p. 3), Iberdrola (p. 4), GPE (p. 3), CEC (p. 2) in submissions to the 2023 directions paper.

21 GPE (p. 3) submission to the directions paper.

22 EnergyAustralia (p. 6), Alinta Energy (p. 2), Ergon Energy (p. 2), Snowy Hydro (p. 4), Origin (p. 2), EUAA (p. 1), CEC (p. 11), AEC (p. 4), Delta (p. 2), Iberdrola (p. 2) in submissions to the directions paper.

23 EnergyAustralia (p. 7), submission to the directions paper.

24 AEMO (p. 8), submission to the directions paper.

AEMO projects that traditional forms of generation will be a feature of the NEM for decades to come. Though technology change may reduce the reliance on such generation, AEMO thinks it is premature at this stage to default to the view that the need for transitional services will no longer exist in 10 years.

2.2.3 We have refined the design features of the framework

While we consider there is a need for the transitional services framework, we recognise stakeholder concerns on many of the design aspects of the framework. Following this and further analysis, we are proposing to refine the framework to ensure it better reflects its objective.

We are proposing to divide the framework into two contract types, each with a specific procurement objective, contract length, and sunset/expiry date, which better reflects the dual aims of the framework:

- **Type 1**: Meet critical and immediate security needs of the power system — these could be entered into up to three years, with the procurement power expiring after five years. This balances the need for certainty amongst industry, the pace at which power system understanding is evolving, and the efficiency in multi-year contracts.
- **Type 2:** Manage security in a low- or zero-emissions power system — these could be entered into for up to 10 years, with the framework sunsetting after 10 years. The longer contract length for these contracts would support investment in resources required to manage system security in a low- or zero-emissions power system.

This reflects stakeholder feedback that the sunset clause and contract lengths did not incentivise the uptake of new technologies, before existing plant retires. We consider that refining type 1 contracts to a short tenor would ensure these contracts meet a critical but temporary security need, while longer type 2 contract would help to support the management of longer term security requirements.

We are also proposing to require AEMO to consider emissions reductions in its contract decisions. This follows stakeholder feedback that the framework as proposed in the directions paper did not incentivise the uptake of low-emission resources or new technologies to enter the system before existing plant retires. In addition, we are proposing explicit reporting requirements on the outcomes of trials procured through type 2 contracts. We consider this would support broader industry understanding and insights into how security will be managed throughout the transition. Taken together, these changes would incentivise the uptake of resources with the necessary capabilities before existing units exit.

2.2.4 AEMO could enter into type 1 contracts to meet critical and immediate system needs that are not met by other security frameworks

The objective of type 1 contracts would be to meet critical and immediate security needs of the power system. This would allow AEMO to procure power system security needs where there is no existing security framework.

As discussed in appendix A and the directions paper, while current frameworks already cover most security needs, we recognise there is a range of known unknowns that are not captured in existing long-term planning frameworks. This has led to an increased number of directions in South Australia.[25]

25 See chapter 4 of the directions paper for more information.

To avoid the over-use of directions, type 1 contracts would allow AEMO to procure security services for specific power system needs, for example, to help contribute and form the unit configurations that are being used to manage the power system. These services — that cannot be specifically and individually defined in the same way that inertia and system strength can be — could be procured from assets that make up the unit configurations. This would allow such resources to be used that AEMO knows are needed to maintain power system security, rather than relying on directions.

The transitional services framework would move these services, for example unit configurations, away from being acquired via directions to a more stable and predictable framework that recognises their function in supporting the transition. While other planning frameworks procure for individual services, the transitional services framework would allow procurement of more general power system requirements, for example the online presence of a generator in a unit configuration under specified conditions.

Type 1 contracts would be a simple yet effective approach to manage technical risks while ensuring we are transitioning to a power system with fewer synchronous units online.

2.2.5 AEMO could enter into type 2 contracts to trial new and emerging technologies that could play a critical role in managing the security of the power system

The objective of type 2 contracts would be to enable the operation of a low- or zero-emissions system. In the directions paper, we proposed that the objective of these types of contracts is to move away from requiring synchronous generators. However, we have refined the objective to consider "emissions reductions" rather than "synchronous generators". We consider this more appropriately reflects the purpose of these contracts and follows stakeholder feedback that synchronous assets may be used in a low/zero-emissions system.[26]

AEMO requires operational experience to stress test engineering theories and assumptions. Type 2 contracts would facilitate AEMO in gaining this experience by introducing a controlled, targeted, and flexible approach to trialling new technologies.

Type 2 contracts could allow AEMO to trial new technologies at scale, as it works through these hold points and becomes more comfortable with new operational states. It would also provide an opportunity to identify any emergent phenomena that could occur in real-life operation that may not be predicted through theoretical testing.

The transitional services framework would consider emissions reductions

The transitional services framework would consider emissions reduction. While this was not previously proposed, we consider it is appropriate to recognise emissions reduction in the framework given that it directly relates to the energy transition and the sourcing of security services from zero-emissions sources. This also follows the new emissions reduction component of the NEO, as well as stakeholder feedback to the directions paper that the framework should prioritise low- or zero-emission technologies (see section 2.2 for more information).

However, we recognise that achieving a low- or zero-emissions power system is beyond the scope of this framework alone and that this framework would complement, rather than lead, industry progress towards government emissions and renewable targets for the energy system. We are therefore not proposing to set specific targets for procurement from zero-emission resources through this framework, particularly given uncertainty over how quickly new technology will

26 AEMO (p. 7) and EnergyAustralia (p. 13), in submissions to the directions paper.

contribute to security provision. Moreover, the maintenance of system security and reliability is a crucial component of the progressive replacement of thermal generators with variable renewable energy (VRE). Compromised security could lead to a significant deceleration of progress towards emissions targets, as we would have to rely more frequently on market interventions and costly measures. We consider that the key objective of the framework is to fill a current gap in security procurement to ensure a secure power system. It is for this reason that we are not proposing prescriptive emission reduction arrangements that may not be achievable while maintaining security.

We are proposing that AEMO would need to consider emissions reductions in its assessment of contract options for both type 1 and type 2 contracts, to ensure the framework complements government emissions reduction targets. AEMO would set out in the transitional services guideline how it intends to weigh emissions reductions against both the cost of these contracts and the security needs of the power system. We consider it is best for AEMO to be able to balance security, cost, and emissions reductions on a case-by-case basis when comparing procurement options, noting that under the NEL AEMO is required to consider the government emissions reduction targets set out in the targets statement.[27]

AEMO would also explain in the transitional services annual report how its contracting processes and outcomes are contributing to emissions reductions. Consistent with the directions paper, the annual report provides a description of the type and costs of services procured through the framework. This would be considered and reported holistically, across both type 1 and type 2 contracts. AEMO could choose to either take a more quantitative, prescriptive approach to considering emissions or a qualitative approach, for example:

- AEMO could decide that in situations where two contracts both meet security requirements and are the same cost, it would choose the lower emissions option.
- AEMO could choose to use a value of emissions reduction and estimate the emissions reductions from each option.

While this would extend to type 2 contracts, we expect that most type 2 contracts to be procured from low- or zero-emission technologies. This could mean that procurement options are less differentiated by their emissions impacts.

We are interested in stakeholder feedback on this approach.

Question 1: Contract types

Do you consider that the revised arrangements for type 1 and type 2 contracts provide adequate investment certainty for new technologies and better reflect the new NEO and the pace at which system understanding is progressing?

2.2.6 We are refining the contract length, sunset/expiry dates and review

We have amended the sunset/expiry period for the transitional services framework. We are proposing two sunset/expiry dates, each linked to the purpose of each contract type.

Type 1 contracts — maximum of three years in contract length, with this contracting power expiring after five years

27 NEL section 32A(5).

Contract length

We propose that type 1 contracts would be for a maximum of three years, consistent with what we proposed in the directions paper. The Commission considers that this timeframe balances the need for certainty amongst industry, the pace at which power system understanding is evolving and the efficiency in multi-year contracts. This approach also aligns with the current interim reliability measure (IRM) and the reliability and emergency reserve trader (RERT) framework, as well as the notice of closure, which provides simplicity and consistency for participants.

Expiry date

However, we propose to shorten the expiry period to five years, to address stakeholder concern that the previous 10-year sunset date was too long. AEMO's ability to enter into these contracts would automatically expire after five years and AEMO would not be allowed to enter into any new type 1 contracts after this date.[28]

We have referred to type 1 contracts as "expiring" rather than "sunsetting" as AEMO would have the ability to enter into multi-year contracts (up to a maximum of three years) up to the end of the five-year period. This means that a multi-year type 1 contract may potentially be in place for three years after the expiry date (see Figure 2.1).

While this differs from what we proposed in the directions paper, this approach would balance the need for both security and costs. It would ensure contract lengths are not increasingly restricted towards the sunset date, recognising that security needs may be most cost-effectively addressed through multi-year contracts. AEMO would continue to be required to report on these contracts through the proposed transparency arrangements (see section 2.2.7) for as long as they are in place.

However, we recognise that we cannot say for certain when AEMO will no longer require synchronous generators in the form of unit combinations to provide the system's security needs. Given this, this procurement power could be extended through a rule change process. The rule change request would need to be initiated by an external party as the AEMC cannot self-initiate a rule change.

Type 2 contracts — maximum of 10 years in contract length and the framework would also sunset after 10 years

Contract length

We propose that type 2 contracts would run for a maximum of ten years. This differs from the three-year tenor proposed in the directions paper. However, the longer contract length for these contracts would support investment in resources required to manage system security in a transitioning power system. This was also noted by stakeholders in submissions to the directions paper (see section 2.2).

Sunset date

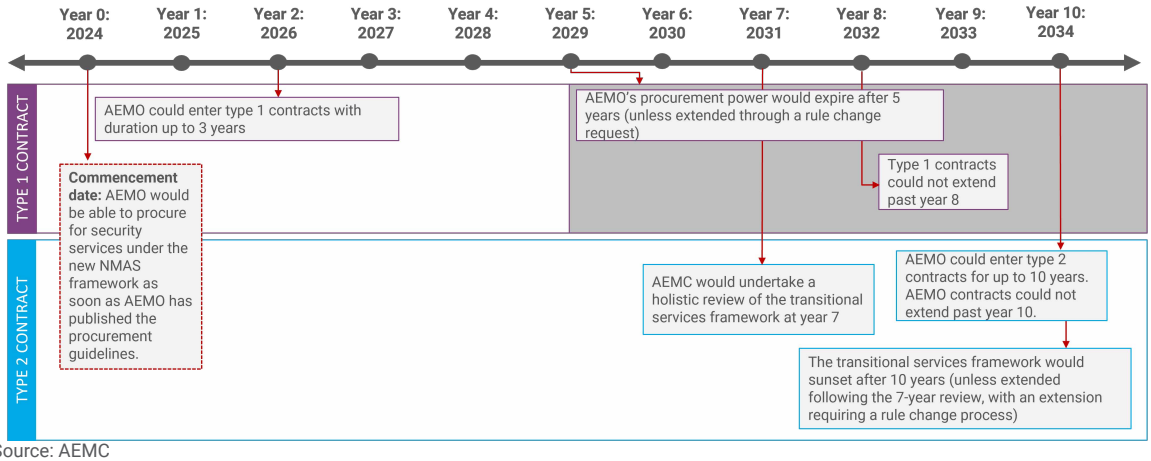
The entire transitional services framework, including the power to enter type 2 contracts, would sunset after 10 years. This would happen automatically and would not require a rule change.

We consider that the 10-year sunset date is required, as type 2 contracts are envisioned to meet a medium-term need, to build AEMO's understanding of power system engineering knowledge. Unlike type 1 contracts, type 2 contracts would not be able to run past the 10-year sunset date (see section 2.2.6 for more details on this approach).

28 A rule change request, submitted by an external party, would be required to amend this expiry date.

An overview of the proposed contract lengths and the sunset dates is provided in Figure 2.1 below.

Figure 2.1: Timeline of the transitional services framework



Source: AEMC

The AEMC would review the framework after seven years

The Commission would review the transitional services framework by the end of 2031. This review would assess whether the transitional services framework is delivering on its objectives and determine whether this procurement power is still needed, in light of AEMO's progression of system security understanding and the framework's overall performance. This review would also recommend whether the framework is required beyond the 10-year point. This is consistent with the proposed review in the directions paper – although the review would now only apply to type 2 contracts (trials) given the type 1 contracting power is proposed to expire earlier.

A seven-year review timeframe is appropriate to allow sufficient time for the framework to operate so that trends or issues could be identified and AEMO can undertake relevant trials to progress its power system knowledge.

The AEMC could also choose to conduct the review sooner if major issues are identified in the annual reporting processes.

2.2.7 We propose to increase the transparency of trial outcomes

In addition to the transparency measures outlined in the 2023 directions paper (and listed below), the Commission also proposes to introduce explicit annual reporting to provide more transparency on the outcomes of trials.

AEMO would report on the outcomes of the trials it is progressing and contracting for through the transitional services framework. We propose that this would be provided as an addendum to the proposed new transition plan for system security (see section 2.3). AEMO could then link the trial learnings to how AEMO is building its understanding and confidence in managing power system security in the long term, in the steps outlined in the transition plan for system security. This is discussed further in section 2.3.3.

We propose to retain the transparency measures proposed in the directions paper including:

- **Transitional services guideline:** outlining AEMO's procurement process.

- **Statement of security needs**: for each procurement exercise, a statement outlining the security need, expected duration, intended procurement process and why no other procurement framework applies.
- **Transitional services annual report:** a description of the type and costs of services procured through the framework.

Further information on the transitional services framework transparency measures is provided in chapter 4 of the directions paper.

2.2.8 We are proposing additional protections for service providers

As outlined in the directions paper, it is likely there will be few eligible providers for the transitional services framework in the near term as the system transitions to fewer synchronous units online. In light of this, AEMO would be able to enter into direct negotiation.

In addition, the Commission also proposes that service providers would be able to engage an independent expert to determine fair pricing in the event that AEMO and the provider are unable to reach an agreement on pricing for the service.

This was also raised by through the submission process, with Shell Energy noting:[29]

> As AEMO determines whether offers are competitive in terms of price, but potential transitional service providers have no opportunity to dispute AEMO's view on price, this creates an imbalance in power in contractual terms. We consider that the AEMC should allow for transitional service providers to engage an independent expert to determine fair pricing in the event that AEMO and the provider are unable to reach an agreement on pricing for the service.

2.2.9 Costs would be recovered across all market customers

All costs for transitional services would be recovered in line with the current NSCAS provisions, as proposed in the directions paper. This would allow AEMO to recover the costs of transitional services contracts across all market customers, with AEMO having the ability to specify regional beneficiaries, if appropriate.

While we considered whether additional oversight of this framework would be warranted, we ultimately concluded that the oversight provided by the AEMC's seven-year review and transparency provided by regular reporting is sufficient. The Reliability Panel may also wish to consider reporting on this in its Annual Market Performance Review (AMPR) report.

2.2.10 Considered together, these contracts would support security needs during the transition

In the **immediate term**, type 1 contracts procured through the transitional services framework would be a more efficient tool than directions for managing the security of the system. It would provide AEMO with a mechanism to help manage the system through periods of high renewable penetration and low levels of synchronous generation, without resorting to interventions as a primary tool.

This is designed as a transitional tool to meet a temporary need. It is not proposed as an enduring solution, with the ability to procure type 1 contracts expiring after five years. In the transition plan for system security, AEMO would also need to describe the work it is doing to move away from needing to rely on type 1 contracts to manage system security.

29 Shell Energy (p. 7), submission to the directions paper.

In the **medium term,** type 2 contracts would provide AEMO the ability to trial and gain operational experience to understand how it can manage system security when existing, emission-intensive resources retire. It would introduce a targeted and flexible approach to trialling new technologies to support a smooth transition to a low- or zero- emissions system.

AEMO would be required report on the outcomes of the trials it is progressing in the transition plan for system security. The learnings of these trials would be outlined as an addendum to the transition plan for system security, to understand how these trials are building AEMO's understanding and confidence in managing security in a low- or zero-emissions system. AEMO's ability to procure type 2 contracts would sunset after 10 years. While we recognise this is also meeting a transitional need, type 2 contracts may need longer procurement windows to incentivise the right plant to enter the system and ensure trials can be run over multiple years, if required, to gain a depth of engineering knowledge.

In addition to the transitional services framework, the transition plan for system security would support the power system's **long term** security needs. This is described in detail below.

Question 2: Design changes

Are there any further amendments to the transitional services framework you consider are needed?

2.3 We are proposing a transition plan for system security

We are proposing to introduce a "transition plan for system security". This would be a new reporting requirement that was not proposed in the directions paper. Through this two-year report, AEMO would outline the steps it is undertaking to manage system security as the power system transitions to net zero.

This would support industry understanding of:

- how AEMO is planning to meet the security needs of the power system through the transition to a low- or zero-emissions system, and
- the current technical understanding of system security and work to improve this understanding and specify services.

To complement and support industry-wide learning and collaboration, we propose that AEMO would engage with the Reliability Panel on the plan, as it does with other security reports. The Panel would have the opportunity to ask AEMO for further information on key issues.

AEMO would respond to any questions raised by the Panel in the final plan. We also expect AEMO would undertake stakeholder consultation before the final plan is published.

We consider that the transition plan for system security, coupled with the refinements to the transitional services framework, addresses stakeholder feedback and creates the right incentives for both AEMO and the industry to support investment in the right capabilities of plant needed to maintain a secure system before existing resources retire.

We think this strikes an appropriate balance between improving transparency on security needs, while also not prescribing the milestones AEMO should be undertaking to progress its understanding of system security needs. This approach would also provide flexibility in determining the most appropriate ways of managing system security, without assuming that all security services will be best procured through unbundled spot markets.

2.3.1 Stakeholders continue to have a preference for unbundling and discrete procurement of services

Many submissions to the directions paper called for 'unbundling' of security services as soon as possible, particularly the consideration of an inertia spot market. The objective of unbundling is to move away from the current practice of unit configurations (where specific combinations of units are required to be online to maintain security) to an environment where the individual system services that these unit configurations provide are disaggregated and separately specified, valued and procured.

Many considered that not enough progress was being made towards unbundling. Some stakeholders were also concerned that the creation of the transitional services framework signals a reduction in the Commission's conviction that security services are best unbundled and procured through discrete mechanisms.[30]CS Energy indicated that it is:[31]

> Not supportive of the transitional services framework as presented as it formalises the direction process of ESS, does not provide incentives to AEMO to appropriately value and procure individual ESS nor is the appropriate transparency in place.

To ensure continued progress towards separate service definitions and real-time procurement, some stakeholders suggested AEMO's use of the framework could be contingent on AEMO's specification of the parameters required to give it confidence in the secure operation of the power system.[32] By setting out the system's requirements, stakeholders hope that the procurement of discrete services could be progressed in separate mechanisms, thereby resulting in a more efficient outcome that could better meet the NEO.

In particular, the CEC noted the unique role of AEMO and suggested that:[33]

> AEMO should be given a clearer role in the development of new services, in light of its unique understanding of where the power system is heading and what will be needed in coming years to maintain stability.

The Commission maintains the ultimate goal is to individually procure and value security services, where this is possible and justifiable

In response to stakeholders, the Commission wishes to re-confirm that the ultimate goal — if both technically feasible and economically justifiable — remains the independent procurement and valuing of security services. We recognise that this could provide investment and scarcity signals for participants to deliver these services at least cost to consumers.

The existence of the proposed transitional services framework does not preclude the Commission's continued consideration of alternate procurement approaches, such as through the *Efficient provision of inertia* rule change project.[34] As noted in the consultation paper for that rule change, we first need to understand the technical characteristics of a particular service (including its definition), and then consider the best arrangement to value and procure it given the economics.

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30 EnergyAustralia (p. 1), Alinta Energy (p. 1), AEC (p. 1), Stanwell (pp. 1-2), Origin (pp. 1-2), CEC (p. 2), ENA (p. 1), Delta (p. 1), Tesla (p. 3), Engie (p. 1), submission to the directions paper.

31 CS Energy (p. 5) submission to the directions paper.

32 EnergyAustralia (p. 14), Origin (p. 2), AER (p. 3), SnowyHydro (p. 3), CS Energy (p. 3), CEC (p. 7), Shell Energy (p. 2) in submissions to the directions paper.

33 CEC (p. 7), submission to the directions paper.

34 See: https://www.aemc.gov.au/rule-changes/efficient-provision-inertia.

The Commission understands that the technical understanding of system needs is currently insufficient to specify system needs at all times, resulting in an over-reliance on directions. The proposed transitional services framework sought to rectify this over-reliance specifically in circumstances in which the understanding of the nature of the service is inadequate.

The addition of the transition plan for system security, see more details below, aims to address stakeholder feedback that more transparency and industry involvement is required in how AEMO plans to manage system security as we transition to a new operating environment.

2.3.2 Why the Commission considers an additional reporting requirement is needed

The transition plan for system security would be a new reporting requirement that was not proposed in the directions paper. We consider this report is needed to ensure industry is well-informed about:

- how AEMO is planning to meet the security needs of the power system through the transition to a low- or zero-emissions system, and
- the current technical understanding of system security and work to improve this understanding and specify services.

In providing this information, this plan would help provide investment signals to support investment in the resources and capabilities needed to manage a secure system, before existing plant retires. It would address feedback from stakeholders about the need for more transparency on the services and any operational standards AEMO requires to manage power system security and the progress AEMO is making towards managing system security with high levels of renewables.

This plan would require AEMO to outline the steps it is undertaking to manage power system security through the transition. The plan would be explicitly linked to type 2 contracts procured through the transitional services framework, with AEMO outlining how these trial learnings are building AEMO's understanding and confidence to manage security in a low- or zero-emissions system (discussed further in section 2.3.3). This could also act as an incentive to use the trial aspect of the framework where it can add value, without prescribing this obligation in the Rules.

To promote collaboration and industry-wide learning, AEMO would publish a draft plan, which it would engage with the Reliability Panel on as it does with other security reports. We also expect that AEMO would undertake stakeholder consultation before the final plan is published (see section 2.3.4 for more information).

The transition plan for system security would be published every two years, with the draft plan published in the alternate years. We are also proposing the trial learnings (see section 2.3.3) be published as an addendum to this report.

Question 3: Transparency

Do you consider the transition plan for system security would improve transparency on long term security needs?

2.3.3 The transition plan for system security would outline explicit steps AEMO is undertaking to manage power system security

The proposed transition plan for system security would outline an explicit pathway of the steps AEMO is undertaking to evolve its engineering knowledge and manage security in a low- or zero-emissions system without needing to rely on type 1 transitional service contracts.

Specifically, the transition plan for system security would include:

- An outline of AEMO's **current understanding** of security services and any current or planned work towards **refining security service specifications**.
- Any **operational metrics** AEMO uses, or is developing, to manage security.
- A detailed description of **AEMO's long-term plan to manage security** and the work it is doing to address system security challenges as we transition, for example:
  - challenges in different regions and how it plans to address them
  - how it plans to meet required levels of services or aspects of the technical envelope.
- The **required capabilities or new entrant resources** that could participate in managing system security (this should also be done in conjunction with TNSPs).
- A plan for how AEMO intends to **move away from using** the transitional services framework (for example, whether AEMO would procure security services from newer technologies that are not currently being used in unit configurations)
- The **outcomes and learnings from the trials** conducted through type 2 contracts.

We recognise that there may be instances where AEMO does not know how it will manage the system securely without relying on either type 1 contracts or intervention tools. In these events, the report would require AEMO to outline the barriers it is facing (e.g. whether it is due to a lack of knowledge or investment in particular plant types or the need to gain operational experience to test its assumptions), and the plan for how AEMO would overcome these barriers — including the duration it expects to be relying on these tools (e.g. at least X years).

The Commission expects that AEMO's plan to manage security would be linked to the trial aspect of the transitional services framework. The trial learnings of the type 2 contracts would need to be described within the plan, through an addendum to the report.

While AEMO would not be required to include learnings from previous trials, we encourage AEMO to draw on any past trial outcomes that may assist industry understanding of emerging security needs.

> **Question 4: Transition plan for system security**
>
> Is there anything missing from the transition plan for system security that is needed to further promote investment signals and increase transparency on security needs?

2.3.4 AEMO would engage with the Reliability Panel on the transition plan for system security

To complement and support industry-wide learning and collaboration, we propose that a draft of the plan would be released, which AEMO would engage with the Panel on. The Panel may ask AEMO for further information on key issues.

The transition plan for system security would be published every two years in December, to align with the existing security reporting on system strength, inertia and NSCAS. By December of year 1,

AEMO would publish a draft of the transition plan for system security. We also expect that AEMO would undertake stakeholder consultation before the final plan is published.

AEMO would engage with the Panel on the draft plan and the Panel may provide targeted input to AEMO. This could include specific questions or a request for further information on progress and actions identified in the report. We consider the Panel is best placed to provide this function due to the depth and breadth of industry knowledge across its members and its existing responsibilities to monitor, review and report on power system security.[35]

AEMO would then respond to any questions posed by the Panel when publishing the final transition plan for system security. This process would happen every two years.

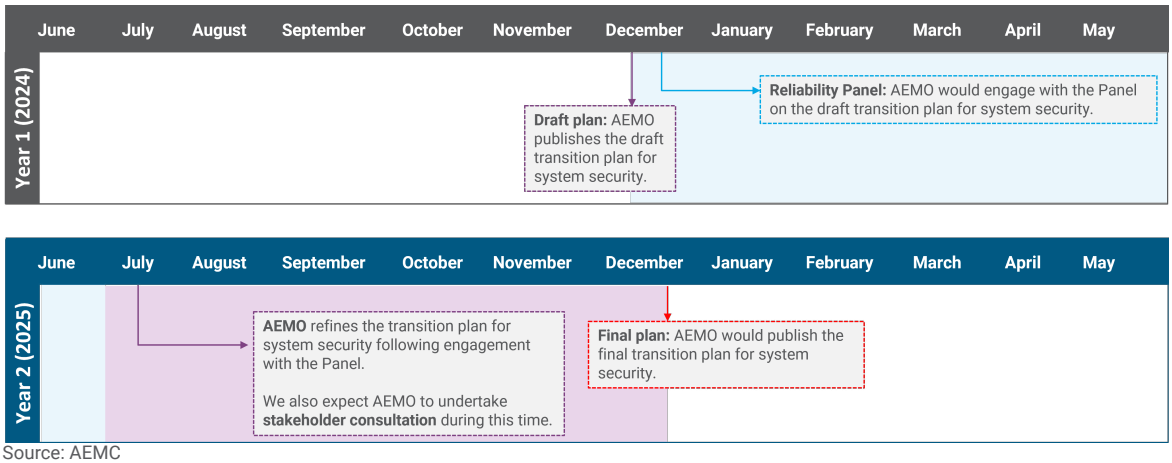
We consider this approach to be consistent with existing security reports including:

- The Energy Adequacy Assessment Project (EAAP): where the Reliability Panel can identify scenarios that AEMO should study in the EAAP.[36]
- Review of technical requirements for connection: where AEMO must consult with the Reliability Panel, amongst other parties when undertaking this review.[37]

Formalising the Panel's role in engaging AEMO on this report recognises that collective industry efforts will be useful as we transition to a low- or zero-emissions system. This approach supports that objective, underpinned with robust transparency arrangements.

A timeline of the plan process is outlined below.

Figure 2.2: Schematic of the transition plan for system security



Source: AEMC

2.3.5 We consider the transition plan for system security addresses stakeholder feedback while striking the appropriate balance between a prescriptive and principle-based approach

We consider that the transition plan for system security, coupled with the refinements to the transitional services framework, addresses stakeholder feedback and creates the right incentives for both AEMO and the industry to support investment in the right capabilities of plant needed to maintain a secure system before existing resources retire.

35 Section 38(2)(b) of the NEL.
36 NER clause 3.7.
37 NER clause 5.2.6A(b).

We think this strikes an appropriate balance between improving transparency on security needs, while also not prescribing the milestones AEMO should be undertaking to progress its understanding of system security needs. This approach would also provide flexibility in determining the most appropriate ways of managing system security, without assuming that all security services will be best procured through unbundled spot markets.

While the Commission considers there are efficiency benefits in individually valuing and procuring security services, given the current reality of system needs, this is not yet feasible in practice. In some instances, it may also not be economically efficient to procure unbundled services from spot markets. For example, while system strength is unbundled, given the highly locational nature of system strength, at this stage in the transition it is more economically efficient to procure system strength through contractual arrangements, rather than through a spot market.

This report would therefore be adaptable and provide transparency of security needs as our engineering knowledge increases, particularly through the operational experience gained through the trials of type 2 contracts.

2.3.6 We consider that a separate report is the best mechanism to address unbundling and transparency concerns, rather than the transitional services framework

As discussed above in section 2.3.1, many stakeholders noted the need for a more explicit pathway to progress to unbundled services and suggested this be achieved through the transitional services framework by:

- introducing more regular reviews to monitor AEMO's efforts towards unbundling on a more granular basis than the seven-year transitional services review[38]
- clearly describing and prescribing the pathway away from the transitional services framework to unbundled services[39]
- explicitly defining the security needs procured through the transitional services framework[40]
- outlining where investment is needed and what new entrant resources could participate in and relieve any constraints or unit combinations.[41]

We consider improving transparency and industry collaboration on system security needs is best addressed through a standalone report. This better reflects the complexity and evolving nature of managing system security throughout the transition. We have proposed that the report would include AEMO's understanding of security services, work towards refining specifications, and operational metrics, which would help increase stakeholder understanding of work towards separate service specifications.

The transitional services framework has been developed to address a temporary and more immediate need. We do not consider this framework should be required in the long-term.

In contrast, the transition plan for system security addresses a more enduring system need, as emerging technologies enter the system and AEMO builds its confidence and understanding of operating the system with high levels of renewable technology.

Therefore, we consider a distinct report is best placed to meet these longer-term needs as it provides more flexibility, without being tied to specific a sunset period.

38 EnergyAustralia (p. 6), CEC (p. 12), in submissions to the directions paper.
39 AEC (p. 2), AGL (p. 2), Delta (p. 2), in submissions to the directions paper.
40 GPE (p. 2), Snowy Hydro (p. 1), CS Energy (p. 5), Origin (p. 2), AGL (p. 2), in submissions to the directions paper.
41 CEC (p. 2), Iberdrola (p. 3), in submissions to the directions paper.

2.3.7 The Commission's policy proposals would complement AEMO's broader work on security

While the transitional services framework addresses security needs in the immediate and medium-term (as described in section 2.2.10), in the **longer term,** the transition plan for system security would outline the steps AEMO is taking to manage security through the transition, without the need for type 1 contracts. It would provide more transparency on AEMO's understanding of security services, support industry-wide learning of how security will be managed in the future and encourage efficient investment in the necessary resources needed to maintain a secure system.

Type 2 contracts would be explicitly linked to AEMO's evolving understanding of how it can manage system security with increasing VRE penetration. As noted above, trial outcomes would be reported on as part of the transition plan for system security.

This approach also complements AEMO's existing responsibilities as market operator to manage and improve the NEM's power system security. This includes its specific obligations to assess the:

- system strength requirements
- inertia shortfalls
- NSCAS needs.

Each of these frameworks enable TNSPs and sometimes AEMO to procure security services. AEMO is involved in identifying future system security needs. TNSPs generally conduct procurement or invest in network services to meet these needs, and AEMO sometimes has a role in procurement if TNSPs are not able to cover needs.[42]

In addition to these frameworks, the Commission also recognises the broader industry involvement in managing power system security. This includes collaboration with the system operator, regulator, and TNSPs to ensure it is designed at the least cost to consumers while still remaining secure and reliable. We consider that the transition plan for system security would be a complementary addition to the existing process and major reports including:

1. The Integrated System Plan (ISP), developed by AEMO in consultation with TNSPs and the broader industry to provide a system-wide overview of the NEM.[43]
2. The annual general power system risk review (GPSRR) that outlines events AEMO expects would lead to major supply disruptions.[44]
3. The annual transmission planning reports (TAPR), developed by TNSPs (AEMO in Victoria) that outlines the risks to the power system over the next 10 years (with an emphasis on the next two-three years), the proposed solutions and expected costs.[45]
4. AEMO's Engineering Roadmap, which is a key piece of work setting out AEMO's priorities and progress towards operating the power system at times of 100% renewable penetration. The transition plan for system security could draw on the Roadmap and draw together results of key security workstreams in covering the proposed areas outlined in section 2.3.3.

42 In Victoria, AEMO generally has the role of a TNSP in network planning and procurement.
43 Clause 5.22 of the NER.
44 Clause 5.20A of the NER.
45 Clause 5.12.1 of the NER.

2.4 The Commission considers the transitional services framework and the transition plan for system security promote the assessment criteria

The Commission considers the proposed transitional services framework and transition plan for system security promote the NEO, as they are consistent with the system services objective and assessment criteria. The reasons are summarised below:[46]

Safety, security and reliability

- The transitional services framework would promote power system security by providing AEMO a dedicated, bespoke tool that can procure both type 1 and type 2 contracts, managing immediate and medium-term security needs.
- By having the transitional services framework in place, it would mean there is less likelihood that other areas of the NEM reaching a similar situation to South Australia, where directions are relied on as a primary means to maintain power system security.
- The transition plan for system security would complement these near-term arrangements by providing a forward-looking and proactive approach to managing system security, beyond the need for the transitional services framework.

Emissions reduction

- The transitional services framework would support emissions reduction by requiring AEMO to consider emissions in procurement; and improving AEMO's technical understanding of how new technologies can provide security services, particularly in the context of retiring synchronous generators.
- The transition plan for system security would also require AEMO to outline how its type 2 contracts are contributing to its understanding of operating a low- or zero-emissions power system.

Principles of market efficiency

- The transitional services framework would provide appropriate incentives and risk allocation by creating a more fit-for-purpose arrangement than directions for those participants whose presence is needed to maintain a secure operating envelope.
- The transition plan for system security would also support longer term investment signals to the industry by outlining AEMO's progress on how it intends to manage system security through the transition, and the resources/capabilities it requires.

Implementation considerations

- The proposals would involve minimal implementation costs and complexity given the simple design of the transitional services framework and the transition plan for system security. AEMO has not yet provided an estimate of implementation costs, however, we expect these to be minimal. For ongoing costs, the Panel may also wish to consider reporting on this in its AMPR report (see section 2.2.9 for more information).

Principles of good regulatory practice

- Both the transitional services framework and the transition plan for system security have explicit transparency measures to shed light on the security needs of the system and how different technologies can meet them.

46 Further details on how the transitional services framework promotes the assessment criteria are provided in chapter 4 of the directions paper.

- Both proposals are also relatively simple to implement, given that they do not require any major system upgrades. The transition plan for system security has also been designed to not require onerous reporting obligations on AEMO as it allows the market operator to report on activities that are already underway, rather than prescribing particular milestones or activities it should be undertaking.
- The transitional services framework would also ensure flexibility and consistency with broader reform by allowing AEMO to adapt and expand the transitional services framework to incorporate new technologies, in response to developments of the market transition and its technical knowledge. The simplicity of the framework and the proposed sunset clause would also allow for broader reform to complement, or indeed replace, the framework as required.
- The transition plan for system security has also been designed to provide AEMO the flexibility to manage the system with the knowledge it has today, while increasing its technical understanding to prepare for more long-term solutions.

Abbreviations and defined terms

AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
Commission	See AEMC
GPSRR	General power system risk review
IBR	Inverter-based resources
ISF	Improving security frameworks for the energy transition (this rule change)
ISP	Integrated system plan
NEL	National Electricity Law
NEM	National Electricity Market
NEO	National Electricity Objective
NER	National Electricity Rules
NMAS	Non-market ancillary service
NSCAS	Network support and control ancillary services
Proponent	The proponent of the rule change request
RERT	Reliability and emergency reserve trader
SRMC	Short-run marginal cost
TAPR	Transmission annual planning report
TNSP	Transmission network service providers
TWG	Technical working group
VRE	Variable renewable energy

A Appendix

A.1 The design of the transitional services framework as proposed in the 2023 Directions Paper

A.1.1 The directions paper proposed that AEMO would procure security services through the transitional services framework where no other framework is available

While current frameworks already cover most security needs, we recognise there is a range of known unknowns that are not captured in existing long-term planning frameworks. Given that these security requirements do not relate to services that can currently be defined (e.g. inertia or system strength), they are not captured under the existing security frameworks, which results in AEMO directions.

Currently, AEMO manages the power system by relying on secure configurations of units known to provide an adequate level of security. For example, in South Australia, AEMO has identified a need for a minimum number of synchronous units online to meet operational requirements. This is to keep the system operating within the secure technical envelope and risk tolerances it considers acceptable, while it tests whether it can transition confidently to fewer synchronous units online. To maintain an adequate level of security, AEMO currently has no alternative except to rely on directions to ensure that sufficient plant remain online. Box 5 provides details on how AEMO manages system security in SA by relying on secure configurations.

Box 5: Secure configurations in South Australia

Until recently, in South Australia a minimum of four synchronous generators were required to be online at all times (i.e. a system configuration) to support system security. This requirement has recently changed with four synchronous condensers installed, with AEMO assessing the system can securely operate down to two synchronous generators.

As part of the system configuration with the synchronous condensers, the system security aspects being delivered by the synchronous generators may include: grid formation and grid reference capabilities; adequate voltage control, ensuring adequate operation of protection systems, to maintain rate of change of frequency below 3Hz/s for non-credible loss of Heywood; secure operating envelope for voltage and transient stability; ramping management; and other unknown unknowns.

Many system parameters and many interactions between parameters make the exact requirements difficult to independently specify.

AEMO has committed to undertaking further studies to better understand the operational envelope in South Australia, and is now exploring reducing the minimum synchronous generator requirement to a single unit. The NSPs are providing support that is required in defining the operational envelope, including on transfer limit advice and protection adequacy.

Initial desktop studies for grid formation and grid reference show that the South Australian system could be theoretically capable of 'holding together' without synchronous generators. Further desktop studies and real-time tests would be required as this is world-first operation.

Source: See: AEMO, Operation of Davenport and Robertstown Synchronous Condensers.

While the Commission considers there are efficiency benefits in individually valuing and procuring security services, given the current reality of system needs, this is not yet feasible in practice. It is important that progress be made in the coming years on these matters. In the interim, AEMO is

managing power system security and working towards expanding the operating envelope to accommodate a low- or zero-emissions generation fleet, and it is therefore critical it is equipped to do this.

The directions paper proposed that the transitional services framework would therefore allow AEMO to procure security services for specific power system needs. For example, this framework could be used to procure transitional security needs crucial to enabling the retirement of thermal generators while maintaining system security. These services — that cannot be specifically and individually defined in the same way that inertia and system strength can be — could be procured from assets directly without requiring their specific definition. This would allow such resources to be used that AEMO knows are needed to maintain power system security, rather than relying on directions.

The framework was proposed as a transitional tool and is not envisioned to be needed once AEMO's understanding of power system security evolves and we return to a position where system security is plentifully provided with new technologies. Box 6 below provides an overview of how AEMO envisages moving away from reliance on secure configurations while allowing for sufficient time to understand the security implications of moving away from synchronous units. The directions paper proposed that the framework would have a sunset period of 10 years. Moreover, the paper proposed that the contracts AEMO enters into under the transitional services framework would be for a maximum of three years. The Commission considered that this balances the need for certainty amongst industry, the time in which power system understanding is evolving and the efficiency in multi-year contracts.

Box 6: AEMO 'hold points' to ensure that instantaneous IBR is incrementally increased while allowing for a greater understanding of security implications

As the energy transition progresses with variable renewable energy (VRE) increasingly replacing thermal generation, the NEM finds itself at the leading edge of global understanding of how to manage renewable energy-dominated grids at a gigawatt scale. The understanding of the technical challenges of ensuring the secure operation of the network with fewer thermal synchronous generators is still evolving and is expected to rapidly develop over the coming years.

As engineering knowledge keeps developing, the Commission expects the level of IBR that the network can securely host to grow. In the Engineering Roadmap to 100% Renewables, AEMO outlines how it envisages transitioning to be able to operate at times with 100% renewables NEM-wide by progressing through 'major hold points'. As illustrated in Figure A.1 below, this process involves gradually expanding the system's secure operating envelope through successive milestones, through an iterative process of analysis, testing, and assessment.

Figure A.1: AEMO planning assumptions for 2018 ISP

Power System Requirement	Planning assumptions used in the 2018 ISP				
	At least 4 synchronous generating units	At least 3 synchronous generating units	At least 2 synchronous generating units	At least 1 synchronous generating unit	No synchronous generating units
SYSTEM NORMAL, REQUIREMENT FOR POWER SYSTEM SECURITY					
System strength & fault current	NOW				SYNCONS / ENERGY CONNECT
Operating reserves for ramping			NOW / SYNCONS		ENERGY CONNECT
SYSTEM NORMAL REQUIREMENT TO SURVIVE 1-IN-3 YEAR SEPARATION EVENT[1]					
Grid formation				NOW / SYNCONS	ENERGY CONNECT
Inertia and RoCoF				NOW[2]	SYNCONS / ENERGY CONNECT
Primary frequency control				NOW / SYNCONS	ENERGY CONNECT
Secondary frequency control			NOW / SYNCONS		ENERGY CONNECT
Operating reserves for energy balance			NOW / SYNCONS		ENERGY CONNECT
SYSTEM NORMAL MINIMUM REQUIREMENT					
Minimum requirement	NOW		SYNCONS		ENERGY CONNECT

Source: AEMO, Transition to Fewer Synchronous Generators in South Australia, February 2023, p.11.

The figure illustrates how AEMO has gradually relaxed minimum synchronous generator limits in South Australia in line with improvements in engineering knowledge, the completion of security studies, and the completion of necessary network infrastructure. The learnings from this process could likely be applied to other regions in the NEM as continued and accelerated retirements of thermal generators puts pressure on the maintenance of system security.

Importantly, the Commission does not consider the proposed transitional services framework to be irreconcilable with the development of unbundled and discrete procurement arrangements for other security services. Instead, the Commission will continue investigating if alternate procurement routes for specifiable security services are technically feasible and economically advantageous on a case-by-case basis. If following the Commission's deliberations, a discrete market were introduced, AEMO would no longer be able to rely on the transitional services framework to procure the relevant service.

A.1.2 The directions paper proposed that AEMO would also be able to use the framework to trial new technologies for providing security

The directions paper also set out that the transitional services framework could prepare us for a future that moves away from security provision by synchronous generators, by allowing AEMO to trial and conduct experimentation on how newer technologies could contribute to system security.

This 'real world' experience and engineering knowledge is essential for AEMO to gain confidence in evolving technologies and enable the system's transition to low- or zero-emissions energy. This would allow AEMO to gain essential engineering knowledge about operating the power system with fewer thermal generators, akin to a sandboxing tool.

A.1.3 The directions paper proposed that AEMO's procurement would be limited to security needs that were out of scope of other planning timeframe frameworks

The directions paper proposed that the transitional services framework would only be able to be used where no other long-term security procurement framework applies. This would retain the primacy of the existing long-term planning frameworks, with TNSPs procuring to meet requirements under the system strength, inertia and NSCAS frameworks.

The directions paper also proposed that AEMO would only be able to procure services for a security need under the proposed framework – and not a reliability need.

The directions paper proposed strong transparency requirements for the new framework

In the directions paper, the Commission proposed that the framework have transparency measures to allow the industry to evolve its understanding of power system security as AEMO does, and to mitigate the risk of opaque procurement. This would include:

- A **statement of security needs** – if AEMO proposed to procure through the transitional services framework, it would be first required to publish a statement indicating the security need, the duration of the need, why no other procurement frameworks apply, and AEMO's intended procurement process.
- An **annual report** – AEMO would be required to publish annually a description of the services covered under the framework and include a breakdown of costs for each facility under the ancillary services agreements.

The directions paper proposed to sunset the framework after 10 years

The directions paper also proposed that the framework be transitional, only being used if needed to support system security until engineering knowledge develops to the point that these services are no longer required. The transitional services framework was proposed to sunset after 10 years, with an AEMC review after seven years to consider whether we have enough engineering knowledge at that point such that the framework is no longer needed.

Additional background on the framework as proposed in the directions paper is available in chapter 4 of the directions paper.

A.2 Other key reforms proposed in the 2023 directions paper

A.2.1 The Commission proposed improvements to the existing inertia and system strength system security frameworks

The Commission's direction is to make three changes to the existing inertia framework:

- introduce a NEM-wide inertia floor
- align procurement timeframes with the system strength framework
- remove restrictions on the procurement of synthetic inertia.

Aligning the inertia and system strength frameworks would allow transmission network service providers (TNSPs) to more efficiently coordinate investment opportunities, while enabling the procurement of synthetic inertia would promote system security and economic efficiency.

The Commission's direction is to remove the exclusion on inertia network services and system strength under the NSCAS framework to ensure there is a backstop procurement arrangement in place to procure these services where a shortfall emerges in the near term before the primary frameworks can address it.

These changes aim to address issues and promote opportunities in the current frameworks to create proactive, forward-looking, and enduring frameworks to help ensure system security and reduce the use of directions.

Further details on the proposed improvements to the planning timeframe security frameworks is available in chapter 3 of the 2023 directions paper.

A.2.2 AEMO would be empowered to schedule long-term planning contracts for security

To capture the full benefits of the changes to long-term planning frameworks, the Commission proposed that AEMO should enable (or 'schedule') planning timeframe contracts for system security. AEMO would only enable contracts where there is a gap between the security outcomes of projected dispatch and the required levels for each security need. AEMO would not enable contracts to meet the entire volume of system security needs.

An arrangement for allowing AEMO to operationally enable long-term contracts for system strength, inertia, NSCAS and the new NMAS would promote efficiencies. This is because AEMO would have the ability to schedule contracts with a whole-of-NEM perspective.

The Commission considers enablement decisions should support the policy intent of the long term frameworks for managing system security. This means contracts would be enabled to meet minimum and transitional security requirements, as well as host projected IBR online, as per the respective security requirements of each framework.

Further details on the operational enablement arrangements can be found in chapter 5 of the 2023 directions paper.

A.2.3 The Commission also proposed improvements to compensation and transparency arrangements for directions

The proposed reforms to inertia, system strength and NSCAS, and the new NMAS arrangements, were all designed to help to reduce the number of security directions issued by AEMO. Directions should remain a last-resort mechanism, however as the system transitions, we recognise directions may be used from time to time. The Commission is looking at opportunities to improve transparency and compensation arrangements of directions.

Stakeholders and the Commission both consider that there are opportunities to improve transparency by including more valuable information in real-time market notices, as well as improving post fact reporting.

In addition, the Commission proposed to amend the basis of directions compensation to a benchmark based compensation framework, similar to the framework used during market suspension periods. This would ensure directed participants would be entitled to compensation based on predetermined values that reflect a benchmark short-run marginal cost (SRMC) for the relevant technology type, as determined through ISP data inputs. This will reduce the risk of under or over-compensation and better balance the needs of generators and consumers.

In response to the directions compensation proposals, stakeholders raised concerns about the proposed reforms and strongly advocated that any changes to the directions compensation framework be considered as part of a larger review. Consequently, the issue of directions compensation will no longer be considered in the *Improving security frameworks for the energy transition rule change*, but instead, will be considered through the *Review into electricity compensation frameworks*.