

4 November 2024

Ms Stephanie Jolly
Executive General Manager
Australian Energy Regulator
GPO Box 3131
Canberra ACT 2601

Dear Stephanie,

AER consultation on system strength framework

AEMO supports the AER's initiative to publish its draft guidance on the efficient management of system strength framework (the guidance). Providing this guidance provides greater certainty to the sector supporting investment in system strength required under the National Electricity Rules.

AEMO also appreciates this opportunity to submit on the draft security network support payment guideline. Contracts, prepared in accordance with the guideline, will need to be enacted by AEMO to maintain system security. Where system strength standards aren't met it is incumbent upon AEMO to manage any shortfall – likely during real time operations with tangible negative impacts on consumers.

In the attached submission we provide our comments on the draft guidance and guideline. We support the AER's overall methodology. Our comments focus on specific issues and areas where adjustment or clarification would further foster efficient investment in system strength.

Should you wish to discuss this detailed guidance please don't hesitate to contact Hannah Heath at

Yours sincerely,

Violette Mouchaileh
Executive General Manager, Reform Delivery

Attachment: AEMO submission: AER consultation on system strength framework



AEMO submission: AER system security guidelines and guidance

This submission is made with reference to both the AER's:

- Draft system security network support payment guideline (guideline).
- The efficient management of system strength framework draft guidance (guidance).

AEMO welcomes the Australian Energy Regulator's (AER's) draft guidance and guideline. The AER's initiative to publish guidance provides clarity on a system strength service provider's (SSSPs) obligations to invest in system strength. The guideline explains how the AER will assess network support payments for system security – which will guide and assist networks contracting for system security services. Both these documents will support investment in system strength services and public consultation on the transmission Regulatory Investment Test (RIT-T) assessments for system strength investments.

Overall comments on the draft guidance

We appreciate the AER's acknowledgement of the uncertainties regarding the options and timings for investment in system strength in its guidance. We agree with and support the AER's guidance on:

- The base case against which RIT-T credible options are assessed,
- The AER's guidance on how to manage modelling complexity, and
- The AER's guidance on the treatment of anticipated projects and ISP scenarios.

Our submission focuses on areas that, with further clarification, we consider will promote better consumer outcomes by providing greater clarity to market participants. Greater clarification will:

- promote consistency across regions, improve the balance between immediate needs and long-term efficient solutions, and minimise the risk of unnecessary disputes.
- Support investment in system strength by third party providers (including the connection of grid-forming BESS, synchronous condensers and updating or repurposing existing technologies).

Our submission also highlights some aspects of the guidance that, if adjusted, should promote better outcomes for customers.

Overall comments on the draft guideline

The Guideline sets out how the AER will determine whether proposed SSNS expenditures in draft contracts are likely to result in prudent and efficient expenditures. The value of contracts for the provision of system strength may be significant. The guideline supports networks in procuring system strength contracts by outlining how it will assess contracts and what it would be unwilling to accept. The AER's subsequent assessments of proposed contracts will provide assurance to networks that they will be able to recover contract costs.

We want to ensure that any necessary contracts for system strength are procured efficiently and in time to meet the National Electricity Rule's (NER's) system strength and inertia requirements. Networks should be supported in this endeavour. With this lens, we submit the following:

- The guideline should further support networks in procuring system security contracts whilst not delaying contract procurement.
- It would be preferable that the guideline apply to a network's contracts as a package, rather than individually.

1. Reasonable endeavours

The NER requires that network service providers (networks) use reasonable endeavours to meet inertia and system strength standards. AEMO submits that, regarding reasonable endeavours:

- different approaches to compliance with the system strength planning standard might be judged reasonable depending on the party making the judgement. In this context, further practical guidance on what the AER considers reasonable endeavours would facilitate better consumer outcomes.
- ex-post assessments of whether endeavours are reasonable should be based on the information available prior to and during when the endeavours were undertaken.

It is entirely possible that, despite reasonable endeavours, SSSPs may not be able to fulfill all system strength requirements come Dec 2025. Network options have long lead times and are subject to supply constraints. Non-network options can be limited. SSSPs must balance the risks of under/over investment to meet system strength planning requirements. Balancing these risks is difficult given the long lead times of any system strength solution. SSSPs should be encouraged to develop contracts but must not be pushed to procure services with unreasonable terms and/or costs. Acknowledgement of this would support a SSSP in acting to procure efficient system strength services.

The AER's guidance goes some way to clarifying what constitutes reasonable endeavours to assist SSSPs. We agree that:

- reasonable endeavours should be considered holistically with regards to all steps the SSSP has taken.
- The quality of the planning process used by a SSSP in making decisions around system strength procurement is an important consideration.
- The likely outcome if the requirements for system strength aren't met is an important consideration.

This guidance bounds the notion of reasonable endeavours and specifies information relevant to the notion. We request that the AER provide further guidance on how to practically judge whether endeavours are reasonable. Below we outline our perspective on tests relevant to deciding if endeavours are reasonable.

1.1 Reasonable actions

A SSSP may have used reasonable endeavours to meet the system strength standard if it acts in a way that would be expected to efficiently meet the standard as judged at the time of action (regardless of whether the actual system strength needs are ultimately met). In this context, we forward that efficiently meeting the system strength standard means:

- Providing the necessary level of system strength by procuring options that deliver the highest net benefit considering their costs, unless
 - Not enough options to provide system strength are available, or
 - The costs or terms of a necessary option to meet the standard is clearly unreasonable.

1.2 The outcomes of inaction

When a SSSP does not procure system strength, AEMO may be required to procure system strength services under an NSCAS contract as a last resort means of ensuring system security. Under the NSCAS framework, we would need to contract for system strength services within a shorter timeframe and with limited options relative to an SSSP.¹ Given these constraints, any *planned* reliance on last-resort NSCAS procurement is expected to deliver a less efficient outcome than SSSP procurement – leading to higher costs and worse outcomes for consumers. Thus, reasonable endeavours should entail SSSPs explore all credible options. Leaving it to AEMO to pursue NSCAS contracts should remain a last resort in unforeseen or unusual circumstances.

The alternative option of issuing directions or taking other operator actions to secure the system has cascading negative consequences for consumers that escalate towards load shedding. Relying on directions increases security risks on the power system because of inadequate transparency, increases administrative burden, does not provide certainty to participants, and does not foster trials of new technologies to support power system security.² There is no guarantee that plant will be available to be directed. Given this, AEMO submits that ‘possible measures that AEMO and/or the SSSP might take to address shortfalls in the operational time frames’ is of little relevance to whether a SSSPs endeavours are reasonable.

1.3 Directions compensation

AEMO does not consider that the cost of directions compensation, as described in section 3.5 of the Guideline, is an appropriate counter-factual to assess the efficiency of providing system strength services.

Directions compensation is likely to be at or below the amount that a system strength provider would be willing to accept in a contract. This is because:

- If they remain in the market, they will receive directions compensation if directed anyway.
- Although the compensation methodology for directions includes an upfront payment set at the 90th percentile pool price of the previous year, this is typically insufficient. Most directed participants are provided additional compensation given atypical operating requirements.³
- The compensation provided for a direction is unlikely to ensure system strength providers remain operational in the market.⁴ Atypical operating requirements and aging plant make it less likely that plant will be available, or to remain in the market, as required.

¹ AEMO must tender for NSCAS services, and its options would be limited to the responses received. This precludes an SSSPs broader, holistic consideration of options.

² AEMC, *Rule determination National Electricity Amendment (Improving security frameworks for the energy transition) Rule 2024*, March 2024, p. 4.

³ Additional claims are limited to the costs of providing the direction. Hence, if the costs of the plant under the operating conditions of providing the system security service are above the 90th percentile price, the costs of directions are likely to be below the level that plant would be willing to accept to provide the service under a contract. This is often the case as plant is directed to operate at minimum generation and the fixed costs of generating become a much higher proportion of the total costs. The fixed costs include start-up costs, costs of heat management. Operating at minimum generation at unplanned times also has maintenance implications.

⁴ We note the AEMC’s comments in this regard: “Commission does not want to incentivise participants to seek directions, either during periods of normal market operation, or periods of market stress such as administered pricing or market suspension. We note that stakeholders consider there is not currently an incentive to be directed. This is in line with the Commission’s intentions for the use of directions as a last resort mechanism,

- The compensation provided for a direction is unlikely to stimulate supply of system strength services (given it is only intended to cover the short-run costs of complying with the direction).

AEMO considers the counterfactual should consider the possibility that there is not plant available to direct to provide the system strength services. This could be the case due to closures or outages both planned and forced.

Directing market participants to provide system strength will, more than likely, be a worse outcome for consumers and the directed participant than providing system strength under an agreed contract.

AEMO considers that it is in the best interests of third-party providers of system strength (like synchronous generators) to engage in good faith to establish reasonable contracts. Directing market participants to provide system strength will, more than likely, be a worse outcome for the directed participant than providing system strength under a contract. Under a reasonable contract, market participants would stand to gain more than the alternative of directions compensation.

1.4 Unreasonable options

When there are limited options, prices for the provision of system strength at a system strength node may be relatively high (e.g. when there is a sole supplier of system strength). However, limited options and high prices do not, in and of themselves, entail unreasonable costs. It may be the case that the costs of providing system strength at the specific node in question are high given the location and technology available. This begs the question, what is an unreasonable option?

To assist SSSPs in making efficient investment decisions, we submit that the AER should clarify what it considers constitutes an unreasonable option.

As we outline above, AEMO submits that directions compensation is not an appropriate reference as to whether an option is unreasonable as directions compensation is likely to be at or below the level of compensation required to cover the costs of ongoing service provision.

In the context of the overall cost/benefit analysis of system strength investment, we forward that the following questions are relevant to determining whether an option is or isn't reasonable:

- Is the price no higher than necessary to stimulate competition for the service (windfall profits may promote the national electricity objective, but only to the extent that they benefit consumers in the long-run)?
- Is the cost comparable to the revenues (or costs) of providing linked services in the market (such as the revenues of a gas peaking generator may earn when participating in the electricity market)?
- Do the terms appropriately account for other revenues that the third-party may recover in providing linked services to the market?
- Does the price reflect atypical operation that might be required under a system strength contract?

particularly given the advent of primary procurement mechanisms for system security services. The introduction of an objective to "incentivise participants to supply services" during a direction will likely go counter to this intent." Ref: AEMC, *Draft report Review into electricity compensation frameworks*, August 2024, p. 7.

Consultants, like those on AEMO's panel of independent experts that assess claims for directions compensation, are familiar with the costs of providing services to the market and may also be able to provide advice on the reasonableness of system strength prices.

2. AEMO's forecasts of minimum and efficient system strength

We agree with the AER's submission that SSSPs should consider the most up-to-date information, including matters that have come to light since publication of the most recent annual security report, when consulting on and investing in system strength. All forecasting involves uncertainty and is subject to change over time. However, we urge caution when deviating from our forecasts, and agree this should only be allowed to occur where there is public and material change to one of the underlying input assumptions used in producing the AEMO forecasts – in particular, we would urge that SSSPs justify and allow public comment on these assumptions through the RIT-T process.

As noted above, solutions to meeting system strength requirements may have long lead times. There is a need to make investment decisions well in advance of the actual need eventuating (for instance to meet the efficient level of system strength requirement). This is reflected in the AEMC's position that the market impacts of having a unit less of the required amount of system strength is more significant than the cost of having an extra unit procured earlier than is needed.⁵ We submit that, where there is some uncertainty regarding forecasts, it is likely preferential for SSSPs to err in favour of over-procurement (or early procurement) – particularly when the system strength services will be required eventually given the impending retirement of synchronous generation.

3. System inertia and broader benefits

Inertia and System strength can be provided jointly. Synchronous Machines automatically provide both system strength and inertia simultaneously. It may also be determined that grid-forming technologies can do so depending on their technical capabilities with investigation and testing of these capabilities to progress over coming years.

Allowing a network to consider all their planning obligations in concert, including requirements set out under the inertia and system strength frameworks, facilitates better outcomes. From AEMO's perspective, stated requirements under one framework should not preclude the consideration of broader benefits (e.g. inertia benefits should be considered a market benefit in a system strength RIT-T).

A good example may be the addition of flywheels on synchronous condensers that are primarily being installed for provision of fault current at a particular node. Whilst the synchronous condenser provides system strength – an attached flywheel would improve inertia levels at marginal additional cost. This is a benefit that should be reflected in a RIT-T and is relevant to judging the efficiency and prudence of an option.

4. Contracts

To successfully deliver the energy transition networks will need to contract for the provision of system security services. The AER should support networks in engaging in these contracts.

There may be circumstances where limited competition results in contract prices being deemed unreasonable. AEMO submits that this should be an uncommon exception, with a significant threshold – including that all

⁵ AEMC, *Efficient management of system strength on the power system, Rule determination*, October 2021, p. vii.

other options are exhausted. When a SSSP does not procure system strength services, it falls to AEMO to procure system strength under an NSCAS contract. This process is expected to lead to a less efficient outcome than SSSP procurement – leading to higher costs and worse outcomes for consumers.

If sufficient system strength isn't available, AEMO must manage the shortfall by issuing directions. Directions compensation is likely below the minimum level of compensation a generator would be willing to accept in a contract. AEMO agrees with the AEMC's assessment of the use of directions. Relying on directions increases security risks on the power system because of inadequate transparency, increased administrative burden, not providing certainty to participants, and not supporting trials of new technologies to support power system security.⁶

Where contracts aren't procured, there may be situations where plant is not available to be directed, due to closures or outages, both planned and forced. This will lead to significant negative consequences for consumers.

4.1 Assessment

The guideline assessment process should support networks to confidently contract for system security services to meet their system security obligations in full and on time. The AEMC sets out reasons why support is necessary.⁷

The guideline will help to level the playing field between network and non-network solutions to meeting their system security requirements⁸. However, we are concerned that networks might be disinclined to establish contracts without passing the AER's guideline assessment. This is likely to delay the procurement by 40 days (or 100 days for complex contracts).

We submit that, given the imminent need for system strength and the desire to level the playing field, a light-handed assessment, leveraging previous tests, would be best. The AER should also consider how the guideline assessment could be undertaken in parallel with the RIT-T (instead of after RIT-T completion). Below we outline the tests that apply to a contract for system security services:

1. The contract must efficiently meet a system security services requirement as set by AEMO.
2. The contract must be developed using reasonable endeavours.
3. The contract must be successfully negotiated with the counterparty through a process the network can prove was competitive, or can be shown to be a direct negotiation that has led to a least cost outcome.
4. The contract must have contract terms agreed between the third-party provider of system strength, the network (and the AER in the context of its assessments).
5. The contract must include price terms that may be enabled as required by AEMO in its enablement procedure.
6. The contract must represent reasonable costs despite the contract being bespoke to the plant in question, its security contribution, its cost characteristics and the incidence or frequency that it would need to be

⁶ AEMC, *Rule determination National Electricity Amendment (Improving security frameworks for the energy transition) Rule 2024*, March 2024, p. 4.

⁷ AEMC, *Rule determination National Electricity Amendment (Improving security frameworks for the energy transition) Rule 2024*, March 2024, pp. 43-55.

⁸ [System Security Network Support Payment Guideline | Australian Energy Regulator \(AER\)](#)

enabled by AEMO (as opposed to simply providing the service for free when dispatched in the energy market).

7. The contract must overcome any technical hurdles, like grid-forming inverters being able to qualify for “protection grade” fault current contribution and therefore be procured for the minimum MVA requirements set out by AEMO.
8. The contract must appropriately price in additional benefits like inertial contribution possibly stabilising the voltage waveform, or conversely the ability for GFMI response to be fully programmable to suit the network location.
9. The contract is identified as a preferred option under the RIT-T (or be a secondary option if approved by the AER).
10. The contract’s costs must align with the cost estimates in the relevant the RIT-T.
11. The contract may, optionally, pass ex-ante contract review by the AER.

4.2 Threshold

The guideline applies a threshold under which the AER will not assess a prospective system security network support contract.⁹ Networks might be disincentivised to enter contracts that don’t pass the AER’s assessment – even if they are efficient. This would run counter to the need to support networks in procuring all necessary system security contracts.

AEMO submits that an alternative threshold, that allows for the consideration of multiple contracts, might be preferential. An alternative that applied to a package of contracts might be better as it:

- Allows for a more holistic efficiency assessment, and
- Allows for the assessment of a package of contracts below the threshold – preventing potential bias towards procuring costlier contracts that meet the assessment threshold.

An alternative threshold might be applied with reference to the net cost or benefit of the contractual arrangements for a specific system requirement (as estimated under the RIT-T relative to the base case).¹⁰

4.3 Performance standards for system security

The guideline’s prudency test implies that a contract should only be for “the minimum level of system security identified by an AEMO shortfall forecast”.¹¹ The phrase “minimum level of system security” should not be referenced in the guideline as it does not reflect the framework and is not defined in the guideline or used in the NER. AEMO notes that the system strength framework now includes an obligation for procurement of all system strength requirements.

⁹ This threshold is 1% of AER approved unsmoothed revenues in a regulatory year for the current regulatory control period.

¹⁰ This would be, for the need that the contractual arrangement addresses, the difference between the net present value of the base case and the ‘preferred option’ or ‘secondary option’.

¹¹ Ibid, p. 10.

We consider that the guideline should explicitly reference the NER requirements of a network in explaining the prudence test to ensure contracts meet these requirements. This avoids confusion on contractual requirements necessary for a network to meet their NER obligations, such as:

- NER Clause S5.1.14 requiring networks to use reasonable endeavours to provide *minimum* three phase voltage levels but also achieve stable voltage waveforms,
- The binding inertia requirements – which will supplant the NER’s defined term “*minimum* threshold level of inertia” once the ISF rule comes into effect on 2 December 2025, and
- the varying requirements for transmission networks to procure network support and control ancillary services.