



Our ref: REL0091
23 April 2026
Australian Energy Market Commission
By email: anna.collyer@aemc.gov.au

Dear Ms Collyer,

National Electricity Rules – Rule Change Request to enhance system restart frameworks

I am writing to submit the Reliability Panel's (the Panel) rule change request, seeking amendments to the National Electricity Rules (NER) to clarify requirements for forward-looking system restoration planning and strengthen the framework for validating these plans to enhance system restart preparedness.

The rule change request is in response to the Panel's recommendations from the 2025 Review of the System Restart Standard (the Review), published 11 December 2025. The Review determined a revised system restart standard (Standard) and made recommendations for changes to the NER to strengthen the system restart regulatory framework to support improved transparency and system restart preparedness in the context of the changing power system.

The Panel requests that the Australian Energy Market Commission (AEMC) consider making the enclosed proposed Rule under section 91 of the National Electricity Law (NEL). Consistent with the findings from the Panel's review, this rule change request proposes changes to the NER with respect to:

- **transparency and reporting:** to clarify the inclusion of system restoration modelling and planning through the transition plan for system security (TPSS) and publish identified opportunities for SRAS investment in the electricity statement of opportunities (ESOO) or a similar publication.
- **testing arrangements:** to strengthen the system restoration testing framework to support deeper network testing and testing of new restoration pathways required to meet future restoration needs.
- **local black system procedure (LBSP) framework:** to strengthen the LBSP framework to clarify the capabilities expected to be maintained and documented through a plant LBSP and the role of energy support arrangements within system restart planning.

For each amendment, the enclosed Rule change request includes:

- a statement of the issues being addressed by the proposed Rule
- a description of the proposed Rule
- a description of how the proposed Rule addresses the issues identified
- a description of how the proposed Rule will contribute to the achievement of the National Electricity Objective (NEO), and
- the expected costs and benefits of the proposed Rule.

The Panel encourages the AEMC to consider coordinating the assessment of this request to align with the implementation of the revised system restart standard from 1 July 2027.

Please do not hesitate to contact me should you have any questions.

Yours sincerely,

Rainer Korte
Chair, Reliability Panel
Commissioner, AEMC

RELIABILITY PANEL RULE CHANGE REQUEST ENHANCING SYSTEM RESTART FRAMEWORKS

IMPROVING TRANSPARENCY AND REPORTING, RESTART
TESTING ARRANGEMENTS AND LOCAL BLACK SYSTEM
PROCEDURE FRAMEWORKS

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1. Overview and Background

This rule change request follows on from and aligns with the Panel's findings and recommendations from its 2025 *Review of the system restart standard*.¹

1.1. Overview of the rule change proposal

This rule change request seeks to strengthen the system restart regulatory framework under the *National Electricity Rules* (NER) by clarifying requirements for forward-looking system restart planning, to support improved restart preparedness as the electricity system undergoes significant change.

The *Reliability Panel* (Panel) submits this rule change request to the *Australian Energy Market Commission* (AEMC) in accordance with section 91 of the National Electricity Law (NEL). This rule change request includes proposals with respect to the following three components:

- **Transparency and reporting (Section 2):** proposed changes to clarify how system restoration modelling and planning are addressed through the *Transition plan for system security* (TPSS), and to publish identified opportunities for SRAS investment in the *Electricity statement of opportunities* (ESOO) or a similar publication.
- **Testing arrangements (Section 3):** proposed changes to strengthen the system restoration testing framework, including deeper network testing and testing of new restoration pathways needed to meet future restoration needs.
- **LBSP framework (Section 4):** proposed changes to strengthen the LBSP framework by clarifying the capabilities expected to be maintained and documented through a plant LBSP, and the role of energy support arrangements in system restart planning.

1.2. Background - improving the arrangements for the provision of SRAS

The process for restoring the system is at a transition point. The supply mix is rapidly changing, with synchronous generation increasingly displaced by *inverter based resources* (IBR), including wind, solar and batteries. There are also significant changes to network topography, including shifts in the location of generation, the introduction of new transmission infrastructure, increasing penetration of *consumer energy resources* (CER), and the emergence of new large loads. Together, these changes require a reassessment and renewal of the process for restarting the power system following a black system event.

In the context of this ongoing change in the power system, the Reliability Panel made a final determination in December 2025 for its review of the system restart standard and system restart frameworks. The Panel's final determination:²

- determined a revised Standard, to provide improved guidance and flexibility to AEMO to support future SRAS procurement and planning to meet the needs of the changing power system³
- made final recommendations to strengthen the current system restart regulatory framework and actions by AEMO to support improved system restart preparedness, including proposed changes to the rules that would clarify requirements for forward-looking restoration planning and strengthening of the frameworks to validate this plan.

This rule change request supports action on identified improvements to the regulatory frameworks consistent with the Panel's recommendations.

¹ AEMC Reliability Panel, Review of the System Restart Standard, Final report, 11 December 2025

² AEMC Reliability Panel, Review of the System Restart Standard, Final report, 11 December 2025

³ SRAS are broadly broken into black start and restoration support services. Black start services initiate the restoration process following a black system event. Restoration support services are procured to help stabilise the re-energisation process.

2. Improving transparency and reporting on future SRAS needs

2.1. Nature and scope of issue

Transparency on future SRAS needs supports timely development of system restart capability and more effective stakeholder engagement as the power system transitions. To date, SRAS reporting has generally been backward-looking. The Panel considers that clearer reporting by AEMO would help identify potential future SRAS gaps and improve industry understanding of the risk of not meeting the System Restart Standard (Standard) under different plausible future system conditions.

Currently, the NER requires AEMO to report on SRAS procurement outcomes through the *non-market ancillary service* (NMAS) annual report. AEMO is required to report on:⁴

- the processes followed by AEMO to acquire SRAS for each electrical sub-network
- the total cost of procuring SRAS in each sub-network and region
- whether it has been unable to procure sufficient SRAS to meet the Standard and the reasons for this.

The Panel considers that this reporting function could be enhanced to improve transparency of future SRAS needs. A key improvement would be the inclusion of reporting by AEMO that provides a forward-looking, assumption-based planning view of SRAS sufficiency over the planning horizon, including uncertainties, sensitivities and key caveats, and the implications for each electrical sub-network.

The Panel recognises that, while not obligated to do so under the NER, AEMO also reports on system restart risks and potential mitigants through the *General power system risk review* (GPSRR), *Engineering roadmap*, ESOO and TPSS. However, the regulatory framework could better support AEMO to publish more detailed information on how it plans to meet the system restart standard in future, including any emerging gaps in SRAS sufficiency over the planning horizon.

2.2. Description of proposed rule

The Panel proposes amendments to the NER to require AEMO to publish:

- the outcomes of system restoration modelling and planning through the TPSS
- identified opportunities for investment in SRAS capability in the ESOO, or similar publication.

These proposals are described further in the following sub-sections.

2.2.1. The TPSS framework could be enhanced to support improved transparency around planning for future system restart needs

The Panel proposes the following Rule amendments in relation to the TPSS set out under NER clause 5.20.8,

- Expand the purpose of the TPSS under NER clause 5.20.8(b)(2) to include AEMO's current technical understanding of what is needed to achieve power system security and enable system restart in a low- or zero-emissions power system and the work AEMO is undertaking to improve this understanding and to specify the range of services that will be required in a low- or zero-emissions power system.
- Expand the requirements for the TPSS under NER subclauses 5.20.8(c) to explicitly require that the TPSS include a description of AEMO's plan to manage power system restoration, and meet the system restart standard, through the transition to a low or zero emission power system.
- Consider practical requirements for AEMO to consult with and include input from the Reliability Panel and other relevant stakeholders to test and improve its forward-looking system restoration plans on an iterative basis through the TPSS. This could include requirements for engagement with both TNSPs and DNSPs and other relevant registered participants and for these parties to be required to provide necessary information to AEMO to support its forward-looking system restoration planning.

2.2.2. Publication of opportunities for investment in SRAS capability in the ESOO, or similar publication

The Panel proposes amendments to the NER to improve transparency around future opportunities to provide SRAS. This reporting would be provided by AEMO and could be incorporated into the ESOO or a similar alternative publication.

The Panel proposes that the Commission consider including a new clause under NER clause 5.20.8 to:

⁴ NER, clause 3.11.10.

- include a new requirement for AEMO to identify future SRAS gaps associated with risks of not meeting the SRS for each electrical sub-network over the planning horizon
- identify broad capability needs and opportunities for future SRAS provision with respect to zones/location considerations to assist in meeting the SRS.

2.3. How the proposed rule change would address the issue

The Panel's proposed changes would establish clearer requirements in the NER for AEMO to prepare and publish a forward-looking restoration planning and reporting framework, supporting industry understanding and engagement on the capabilities required to meet the System Restart Standard through the transition. Specifically, the proposed changes seek to:

- require that the TPSS include a forward-looking, assumption-based planning view of SRAS sufficiency through the transition to a low- or zero-emissions power system, including:
 - the future system restart needs for the NEM, based on future-focused restoration modelling that accounts for the contribution of IBR and expected coal-fired generation closures over the planning horizon set out in the TPSS.
 - engagement with the Panel on the future system restart needs and associated restoration modelling.
- Require AEMO to report on identified SRAS investment opportunities through the ESOO or similar publication. The Panel considers this would:
 - provide certainty to market participants around the approach to the delivery of system restart capability through the transition
 - support AEMO in acquiring the appropriate resourcing to carry out this important function for system restart planning.

The Panel considers that these changes would improve transparency and support earlier, more informed engagement on future system restart needs, while recognising that future system conditions and specific SRAS requirements and procurement outcomes will be subject to uncertainties over the planning horizon.

2.3.1. The TPSS framework could be enhanced to support improved transparency around planning for future system restart needs

The Panel's proposed Rule would require AEMO to provide a forward-looking, assumption-based assessment of future system restart capability needs through the transition to a low- or zero-emissions power system, building on the purpose of the TPSS set out in NER clause 5.20.8. The key elements of the Panel's proposal include:

- setting out the future system restart needs for the NEM based on future-focused restoration modelling that accounts for the contribution of IBR and the expected closure of coal-fired generation over at least a 10-year planning horizon.
- engagement with the Panel on the future system restart needs and associated restoration modelling.

Forward-looking restoration planning should align with the planning horizon set out in the TPSS

The Panel suggests that SRAS reporting should provide an assumption-based planning view (probabilistic analysis) against the SRS. The Panel considers that reporting on long-term restoration planning would support industry understanding of AEMO's outlook and how it plans to meet system restoration needs and the system restart standard for a future power system with limited thermal coal availability. The Panel considers that restoration planning should align with existing planning horizons and be consistent with AEMO's reporting on other transitional system security services such as inertia and system strength.

The Panel proposes that this additional reporting on system restart planning could include the following outputs:

- publishing results from fit-for-purpose power system modelling and analysis demonstrating projected system restoration outcomes for each electrical sub-network over the planning horizon
- consulting with the Panel and all other interested stakeholders on assumptions, scenarios/planning basis, and caveats for the forthcoming modelling, as well as potential outputs for the following year.

The Panel proposes that AEMO identify options to procure SRAS that meet identified SRAS needs, which include:

- specific details of the required capabilities or new entrant resources that could participate in meeting identified regional risks. These findings should also be set out in the ESOO or a similar publication (see section 2.2.3).
- outcomes from existing trials of any type 2 transitional service contracting undertaken in relation to system restart.

The Panel considers that this enhanced reporting on future system restoration needs is consistent with the intent of the existing NER requirements for AEMO. The proposed rule would require AEMO to set out in the TPSS how it plans to maintain power system security through the transition to a low- or zero-emissions power system.

The Panel's proposal builds on AEMO's reporting on system restart needs in the 2025 Transition plan for system security

AEMO published the 2025 TPSS on 1 December 2025. In this report, AEMO highlights that existing system restart pathways could become unviable after coal and other large synchronous plants retire and are likely to require redesign to support a high VRE and IBR power system. AEMO called for strong industry-wide collaboration to develop new approaches and procedures to restart each NEM region when coal stations have decommitted or exited. This would include physical testing of restart pathways without soon-to-retire plant, at least a year ahead of retirements, and other transition points that impact system restart.⁵

The 2025 TPSS provides commentary and preliminary results of forward-looking analysis on system restart needs as the system transitions. This included:⁶

- a call for new black start investment from new hydro or gas generation (100 MVA+) highlighting that:
 - at least two black-start SRAS services may need to be procured in each region from 2027 through to 2030, with the ability to procure more to meet the SRS in each region if required
 - at least three black start SRAS services may be needed per region from 2030 onwards, depending on factors such as development of new methodologies, evolving technical frameworks, and demonstration of new technology restart capabilities.
- preliminary forward-looking analysis on restoration needs under the revised Standard, highlighting the equivalent level of firm generation capacity to meet the revised Standard in each region by 2040, based on publicly announced exits.

The Panel considers there is an opportunity to build on the system restart reporting and commentary provided by AEMO in the 2025 TPSS, and that the proposed changes set out in the rule change request would support enhanced transparency around system restart planning and improved outcomes through a cooperative industry engagement.

Future-focused restoration plans could be enhanced through engagement with relevant stakeholders

The Panel's proposed Rule would require AEMO to engage with the Panel and other interested stakeholders, prior to AEMO's publication of the results and findings in the TPSS.

The Panel suggests that the engagement with the Panel and other interested stakeholders could include:

- consulting on assumptions, scenarios/planning basis, and caveats for the forthcoming modelling, as well as potential outputs for the following year
- presenting draft forward-looking modelling results to the Panel for feedback prior to publication.
- responding to any written commentary provided by the Panel in relation to the forward-looking restoration modelling.

The Panel encourages the AEMC to consider whether other stakeholders should be involved in future-focused restoration planning. The Panel considers this could include requirements for both TNSPs and DNSPs to provide necessary information to support AEMO in its consideration of future system restart needs.

2.3.2. The NER should support reporting of identified SRAS investment opportunities through the ESOO or similar publication

In addition to reporting on the future system restoration TPSS, the Panel proposes that AEMO report on future SRAS investment opportunities through the ESOO or similar publication. This was supported by stakeholders in their feedback to the Review.

Currently, the NER does not set out an explicit requirement for AEMO to publish identified future opportunities for investment in SRAS capability.

The Panel proposes that AEMO publish, through the ESOO, or any similar publication:

- a description of future SRAS gaps / risks of not meeting the SRS by electrical sub-network over the planning horizon
- broad capability needs and zones/location considerations suitable or not suitable to assist in meeting the SRS

The Panel considers this reporting on SRAS opportunities would be beneficial, as it would help inform investment decisions by market participants and support cooperation between AEMO and market participants to meet future SRAS needs.

2.3.3. How the proposed rule change will contribute to achieving the national electricity objective

Consistent with the National Electricity Objective (NEO) set out in section 7 of the National Electricity Law (NEL), this proposal would promote efficient investment in electricity services for the long-term interests of consumers – in particular,

⁵ AEMO, 2025 Transition Plan for System Security, 1 December 2025, p.103.

⁶ AEMO, 2025 Transition Plan for System Security, 1 December 2025, pp.104-106.

with respect to the safety, security and reliability of the power system. It would expand and formalise AEMO's planning arrangements for system restart. It would promote the NEO by better enabling AEMO to secure the necessary resourcing to conduct forward-looking restoration planning, engage relevant stakeholders, and publish a forward-looking report that identifies future system restart needs. This would help enable the secure provision of SRAS to consumers in the long term, ensuring safety and security outcomes are met.

2.4. Estimated costs and benefits

The Panel considers that the benefits of this proposal are likely to outweigh the associated costs. The expected benefits would be associated with improved confidence around future system restoration outcomes driving improved restoration outcomes and a reduction in probability weighted unserved energy associated with the risk of future black system events. The expected costs would relate to additional analysis and stakeholder engagement by AEMO.

The Panel estimates that the scale of additional costs associated with implementation of this proposal would be relatively minor as the proposal leverages existing AEMO reporting arrangements with some expectation for additional future looking restoration modelling. We expect the AEMC to test this further through the rule change process.

The Panel undertook economic analysis to support its determination of a revised system restart standard. This analysis demonstrates that the annualised value of providing an effective system restart capability NEM wide is in the order of \$646m (with sensitivity analysis indicating a range of \$80m - \$1,600m). This far exceeds the historical average SRAS expenditure of \$36m for 2019/20 to 2024/25, as well as AEMO's expected 2025 SRAS expenditure of \$44m.⁷

The Panel estimates that the proposed changes to system restoration modelling and reporting would deliver a small but material increase in the likelihood of successful system restoration following a black system event. Given the substantial costs associated with a prolonged black system condition, the Panel considers that the benefits from improved restoration outcomes are likely to exceed the associated costs of this change.

⁷ AEMO, 2024. Non-market ancillary services (NMAS) report 2024-25, p.10

3. Strengthening system restart testing arrangements

3.1. Nature and scope of issue

Effective, fit-for-purpose system restoration testing supports system restart preparedness and increases the likelihood that restoration plans will successfully re-energise the power system following a black system event. Power system operators worldwide rely on a combination of computer-based deterministic models and physical tests to build confidence in their restart plans.⁸

In an international review of system restoration conducted by International System Operator Network (ISON), survey responses from operators globally indicated that physical testing was considered the “ultimate proof” of restart capability. The report noted that operators expressed a desire to regularly perform physical network tests beyond the initial system restart service, including the next-start generator and load pickup, to confirm the validity of the units procured and their restart plans.⁹

In its technical advice, AEMO noted that the current restart pathways in the NEM have remained unchanged for a considerable period. In developing these pathways, extensive network testing and detailed modelling were conducted, providing a high level of confidence in their functioning in the event of an actual black system event.¹⁰

As the energy transition accelerates, new technologies—including IBR generation, BESS and DER—are entering the system alongside significant changes to network topography, including new transmission infrastructure, thermal coal generation exits and changes in load availability. In this context, new restoration pathways may need to be developed and will require additional testing to verify their effectiveness.

Through the Review, stakeholders noted that while the NER provides flexibility for deep network testing in the NEM, this flexibility “has not translated into consistent practice”.¹¹ As a result, physical testing of restoration pathways can be significantly delayed due to efforts to reduce associated operational impacts.

The Panel proposes that the NER be amended to strengthen elements of the system restart testing arrangements to support effective system restart testing, which will be necessary to verify the effectiveness of new restoration pathways as the power system transforms.

3.1.1. Changes to the NER frameworks are required to support network testing to verify the effectiveness of system restart plans

The Panel recognises that the current Rules framework for system restart testing obligations under clause 4.3.6 provides sufficient discretion for AEMO to establish testing procedures that test deeper into existing restart pathways, so long as these procedures are supported by impacted test participants.

While not explicitly provided for under the NER, the current rule drafting does not preclude AEMO from testing potential new restart pathways, subject to consultation with relevant impacted participants.

The Panel considers that system restart preparedness could be enhanced by amending the NER to more clearly define the different types of system restart tests, the scenarios in which different types of testing are required, and the relevant responsibilities for AEMO and NSPs.

3.2. Description of proposed rule

The Panel's proposal builds on AusNet's submission in response to the Panel's draft determination.¹² AusNet's proposal included the following changes to improve the system restart testing arrangements:

- (1) A clearer definition of deep network testing.
- (2) A series of agreed-upon, defined scenarios where deep network testing is required.
- (3) Mandatory requirement that real-time visible high-speed monitoring capability is in place for all relevant equipment within the restart pathway prior to conducting deep network testing.

⁸ ISON, 2025. International system restoration review. p.4

⁹ Ibid.

¹⁰ AEMO, 2025. System restart technical advice. p.60.

¹¹ AusNet, submission to the issues paper, 30 January 2025, p.4

¹² Ibid.

The Panel proposes the following Rule amendments to NER clause 4.3.6 and Chapter 10 to:

- Introduce definitions in Chapter 10 of the NER for:¹³
 - **Shallow network testing:** A basic startup test where SRAS units must be capable of operating in a stable manner, supplying their own auxiliaries or running at zero export load for 30 minutes.
 - **Deep network testing:** A comprehensive test that involves at least one of the below tests as agreed between AEMO and the relevant TNSP(s):
 - *Line energising test:* A test to verify the SRAS unit's ability to energise lines along the cranking path. The SRAS unit must demonstrate the ability to energise enough transmission to deliver its output to required loads as specified in the System Restart Plan.
 - *Load carrying test:* A test to verify the SRAS unit's ability to supply a pre-arranged load. The SRAS unit must demonstrate the ability to supply the required load while maintaining voltage and frequency for at least 30 minutes.
 - *Next-start resource test:* A test to verify the SRAS unit's ability to start the next unit in the restoration sequence. The SRAS unit must demonstrate the ability to start the next SRAS unit's largest required motor while maintaining voltage and frequency stability for at least 30 minutes.
- Expand clause 4.3.6(b) to allow the conduct of system restart tests to confirm the feasibility of **potential** system restart paths to inform the development of a system restart plan.
- Insert new provisions to mandate deep SRAS testing when:¹⁴
 - a new restart pathway is established or proposed as required to meet an identified system restart need
 - a material change occurs to an SRAS unit
 - sufficient time (in the order of 5-10 years) has elapsed since the last deep network test of the restoration pathway/region
- Consider the merits of opportunity cost compensation for deep network testing for all participants involved, including costs in maintaining or acquiring capabilities specific to SRAS testing.
- Establish a revised framework that supports the development of a prescribed process to guide AEMO when undertaking a deep network test, including a process for collaborating with NSPs in the design of these tests.
- Consider a framework that requires consultation with impacted stakeholders and awards appropriate compensation to affected parties.
- Consider a NER requirement for real-time, visible high-speed monitoring capability to be in place for all relevant equipment within the restart pathway prior to conducting deep network testing.¹⁵
- Consideration of the responsibilities and obligations for TNSPs and DNSPs when planning and conducting deep network tests.

The Panel encourages the AEMC to consider these proposed amendments, and any other similar amendments that would address impediments to the system restart network testing to verify the effectiveness of system restart plans.

3.3. How the proposed rule change would address the issue

The proposed amendments seek to:

- set out clear definitions for various types of network testing arrangements (e.g. shallow and deep network tests)
- determine clear roles for various participants impacted by testing, including specific guidance for AEMO and NSPs
- set out scenarios where deeper network testing is required and guidance on where other testing may be appropriate, and the party or parties responsible for determining the appropriate testing approach
- consider the need for any real-time visible high-speed monitoring capability to be present throughout the restart pathway prior to conducting deep network testing.
- consider whether current compensation and cost recovery arrangements remain appropriate for all types of network testing arrangements, based on the risks and costs associated with each type

These changes are based on the Panel's consideration of stakeholder proposals that set out key considerations for a revised framework.

3.3.1. Clear guidance in the Rules could help navigate the challenges in coordinating deep network system restart testing

¹³ Based on definitions proposed by AusNet in its submission to the draft determination, 16 October 2025, p.3

¹⁴ Ibid, p.4-5.

¹⁵ Ibid, p.5.

AEMO considers that there is a strong need for a dedicated ongoing program of deeper testing of new and existing restart paths. In particular, this would include testing the interaction between different technologies in the early stages of a restart event. AEMO set out some key tests that could include:¹⁶

- the ability of BESS to restart nearby network and other generation plant
- the restoration of select IBR from traditional black start providers, and the impact on the stable restoration island, including the nearby network
- the ability to use existing high voltage direct current (HVDC) interconnectors as an SRAS resource
- the ability of renewable energy zones (REZs) to form an independent restoration island.

The Panel recognises there are significant technical risks and commercial considerations when considering extensive system restart tests in the NEM.

The Panel notes that only ERCOT (Texas, USA) and Energinet (Denmark) have been able to routinely perform network-based testing beyond the initial black start plant, with others struggling to secure the necessary outages to facilitate this procedure, meaning such network and load testing may need to be indefinitely postponed.¹⁷ Deep network system restart tests are challenging in the NEM, given there is little redundancy in the network when critical transmission pathways are taken out of service to perform the appropriate system restart tests.

The Panel considers that these challenges are best navigated through clear guidance in the NER. The proposed Rule aims to strike a balance between the benefits of improved system restart effectiveness and the costs and risks associated with undertaking network testing to verify system restoration plans.

3.3.2. Consideration of the need for real-time high-speed monitoring capability to support deep network restoration testing

In its submission to the Panel's review, AusNet proposed that real-time high-speed monitoring capability is essential for testing to provide meaningful insights and enable accurate validation of system behaviour against models.¹⁸ AusNet noted that while *Supervisory Control and Data Acquisition* (SCADA) systems are available, their typical four-second data intervals are not sufficient to detect fast-acting phenomena relevant to system restart conditions, such as resonance oscillations or transient instability.¹⁹ The Panel agrees with AusNet's assessment and proposes that the NER be revised to require that testing arrangements are fit for purpose and capable of capturing and recording critical system behaviours.

3.4. How the proposed rule change will contribute to achieving the national electricity objective

Consistent with the National Electricity Objective, this proposal would promote efficient investment in electricity services for the long-term interests of consumers – in particular, with respect to the safety, security and reliability of the power system. It would mandate deep network testing of system restart pathways. These pathways are critical to system restoration efforts in the event of a black system event. Without appropriate testing of these critical pathways, the system restoration effort may be prolonged, resulting in substantial costs to consumers. Therefore, the Panel considers that the proposed Rule framework would support the long-term interest of consumers by ensuring these pathways are physically tested, and by enabling AEMO to ensure the safety and security of the national electricity system.

3.5. Potential impacts – costs and benefits

The Panel notes that the development of deeper restoration tests is complex and would take extensive planning and coordination to execute. In its submission to the Panel's draft determination, AusNet expands on the trade-offs associated with foregoing deep network testing, noting that they "require all parties to accept the risks and commit to the planning and effort required to conduct meaningful deep network tests".²⁰ These considerations are set out in Table 1, below.

¹⁶ AEMO, 2025. System restart technical advice. p.60

¹⁷ ISON, 2025. International system restoration review. p.4.

¹⁸ AusNet, submission to the draft determination, 16 October 2025, p.5.

¹⁹ Ibid.

²⁰ AusNet, submission to the draft determination, 16 October 2025, p.4.

Table 1: Risks associated with foregoing deep network system restart testing

<i>Risks of undertaking deep network tests</i>	<i>Risks of not undertaking deep network tests</i>
• Potential damage to transmission assets (e.g. transformers could be damaged if they do not have adequate over-voltage protection). • Operational complexity and coordination challenges. • Cost implications for generators (e.g. units may need to be offline for extended periods).	• Increased risk of restart failure due to invalidated pathways. • Reduced confidence in restoration modelling and system readiness. • Limited ability to identify and resolve latent issues in restart pathways.

Source: AusNet, submission to the draft determination, 16 October 2025, p.4.

The Panel considers that the proposed Rules strike a balance between the need to undertake deep network tests and the frequency in which these tests should be conducted. By setting out a trigger for deep network tests to be conducted only when there are significant changes to the system restart pathway, the cost of system restart testing can be absorbed by the benefits of achieving an ideal restoration outcome during a black system event. As noted in section 3 above, the Panel estimates the NEM-wide annualised total benefit of achieving an ideal restoration at \$646m.

4. Clarifying local black system procedure frameworks

4.1. Nature and scope of issue

The LBSP frameworks support the provision of information that underpins AEMO's preparation of the system restart plan for each electrical sub-network. Through its Review and associated stakeholder submissions, the Panel has identified material concerns regarding the LBSP framework, particularly in relation to:

- whether LBSPs provide accurate, up-to-date and reliable plant information to support secure energisation during restart
- ambiguity about the capabilities and performance standards set out in LBSPs (particularly where capabilities are uncompensated), compared with capabilities and services provided under a compensated SRAS agreement
- how energy support arrangements should be incorporated into AEMO's system restart plan

4.1.1. The current LBSP framework

The system restart plan, and thereby SRAS procurement needs, are informed by local black system procedures (LBSPs) that each generator, integrated resource provider (IRP) and network service provider (NSP) in the NEM is required to develop and provide to AEMO.²¹ The LBSP includes all procedures, requirements and relevant performance of plant (including generation and network assets) during their restart. The LBSP information underpins system restart modelling and could support the identification of gaps in restoration pathways and opportunities for market participants to provide services to fill those gaps. The current NER framework requires AEMO to develop and publish a LBSP guideline in consultation with registered Generators, IRPs and NSPs.²²

LBSPs must be developed in accordance with the LBSP Guideline. At a high level, LBSPs require the participant to set out:

- the information AEMO requires to understand the likely condition and capabilities of a plant following a major supply disruption
- actions that the relevant participant must undertake following a major supply disruption, prior to the energisation or synchronisation to the grid
- any relevant energy support arrangements to which relevant participants may be a party.²³

The NER also outlines a process for AEMO to review and approve LBSPs submitted by registered Generators, IRPs, and NSPs.

In the event that an individual customer or customers require an increased level of protection from major supply disruptions over and above that provided to them under the Standard, they may make standalone arrangements for the provision of such a service, either through onsite backup generation or by entering into a contract with a third party for energy support. The NER contemplates the existence of such an "energy support arrangement" which is defined as:

energy support arrangement

A contractual arrangement between a *Generator, Integrated Resource Provider or Network Service Provider* on the one hand, and a customer or *participating jurisdiction* on the other, under which *facilities* not subject to an *ancillary services agreement* for the provision of *SRASs* are used to assist *supply* to a customer during a *major supply disruption* affecting that customer, or customers generally in the *participating jurisdictions*, as the case may be.

The NER requires that LBSPs must appropriately incorporate any relevant energy support arrangement to which a Generator, Integrated Resource Provider or Network Service Provider may be party. NER clause 4.8.12(f)(2)

4.2. Description of proposed rule

The Panel proposes changes to the NER that would strengthen elements of the LBSP framework to:

- enhance the LBSP process and obligations to ensure AEMO receives accurate, up to date and reliable information
- provide clear guidance on the capabilities that are expected to be maintained as part of an LBSP, outside the provision of an SRAS contract
- develop a framework that more strongly recognises the existence of energy support arrangements, including clear guidance on their purpose, the roles of relevant parties and their interaction with system restart planning.

²¹ NER, clause 4.8.12(d)

²² NER, clause 4.8.12(e)

²³ NER, clause 4.8.12(f)

The Panel proposes the following Rule amendments to NER clause 4.8.12:

- insert a new clause setting out the requirement for NSPs to design, install, operate and maintain all necessary equipment to facilitate system restoration following a major supply disruption and to document this capability in their local black system plan.
- insert a new clause to require LBSP providers to provide accurate information consistent with AEMO's LBSP guideline and maintain their plant in accordance with the current approved LBSP. Updates to the LBSP must be provided to AEMO as soon as participants become aware that the LBSP no longer accurately reflects the conditions and capabilities of the plant.
- Insert a new clause to state:
 - Where practical, AEMO must consider and appropriately incorporate any relevant energy support arrangement as set out in a local black start system procedure in accordance with clause 4.8.12(f).
- Insert a new clause on the process for entering into an energy support arrangement, which sets out that:
 - a participant must notify AEMO of its intent to enter into an energy support arrangement. AEMO and, other relevant parties as determined by AEMO, must be consulted with before the energy support agreement is enforceable. The cost of an energy support arrangement must not be borne by consumers.

4.3. How the proposed rule change would address the issue

The Panel considers that the proposed rules respond to stakeholders' concerns regarding the LBSP framework, in relation to:

- the ambiguity of the capabilities set out in LBSPs that are required to be compensated
- incentives for participants in entering energy support arrangements.

The Panel considers that the LBSP framework is designed to support AEMO's understanding of the plant's capabilities under system restart conditions. The LBSP should:

- be used to inform system restart planning, including identifying the appropriate system restart path and informing the appropriate SRAS providers along potential restart pathways that minimise the cost of SRAS procured to meet the Standard.
- not incur substantive additional costs for participants, beyond what would be reasonably expected to be provided.
- provide sufficient time for AEMO to respond to revisions to LBSPs, through SRAS procurement or changes to the system restart plan, or both.

Furthermore, the Panel notes stakeholder feedback highlighting the potential for energy support arrangements to provide greater protection against major supply disruptions than under the Standard. However, the Panel recognises that this potential has not been delivered through the current NER arrangements.

In considering stakeholder feedback on the LBSP framework, the Panel's proposed Rule change is based on the following scoping considerations, to:

- provide clear guidance on the services that are expected to be maintained as part of an LBSP, outside the provision of an SRAS contract
- develop a framework that more strongly recognises the existence of energy support arrangements, including clear guidance on their purpose, the roles of relevant parties and their interaction with system restart planning.

4.4. How the proposed rule change will contribute to achieving the national electricity objective

Consistent with the National Electricity Objective, this proposal would promote efficient investment and operation of the power system to deliver system restart capability in a safe and secure way. It would promote the NEO by promoting efficient investment and efficient operation of the services that support the system restart plan. Without clarity in how these services are considered in the system restart plan, this could lead to prolonged outages in the event of a black system event. The proposed rule changes help enable the long-term, secure provision of SRAS to consumers, ensuring safety and security outcomes are met.

4.5. Potential impacts – costs and benefits

The proposed amendments to the LBSP framework are expected to deliver net benefits by strengthening the quality and reliability of information used for system restart planning. Clarifying the capabilities expected to be maintained under LBSPs and their relationship to services procured through SRAS would reduce ambiguity and improve incentives for participants to accurately declare their restoration capabilities. This is expected to support more effective system restart planning, reduce the risk of gaps in restoration pathways, and promote more efficient SRAS procurement, with flow-through benefits for power system security and consumers.

The proposed changes are also expected to facilitate more effective use of energy support arrangements by requiring them to be considered in system restart planning. This would enable customers, particularly large industrial customers, to obtain additional protection from major supply disruptions where it is valued, while supporting coordinated restoration outcomes.

The proposed rule change may impose modest administrative and compliance costs on participants and AEMO, associated with updating LBSPs and consulting on energy support arrangements. There may also be additional costs for procuring services that may be required under a system restart plan, but are not provided under a plant's LBSP. We note energy support arrangements may incur additional costs, however, these costs are borne by the party that requests the arrangements and these costs would not pass through to consumers.

The Panel considers these costs to be proportionate and outweighed by the benefits of improved clarity, regulatory certainty and system resilience.