

Consultation on ST PASA Replacement Project – Reserve Level Declaration Guidelines

Consultation paper -
Standard consultation for the
National Electricity Market

Published: 12 January 2026

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New South Wales | Queensland | South Australia | Victoria | Australian Capital Territory | Tasmania | Western Australia

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Explanatory statement and consultation notice

This consultation paper commences the first stage of a standard rules consultation procedure conducted by AEMO to establish detailed guidelines for load forecasting and reserve declarations for the short term projected assessment of system adequacy (**ST PASA**) replacement project (**proposal**) under National Electricity Rules (**NER**) 4.8.4A(a). The standard rules consultation procedure is described in NER 8.9.2.

This consultation (**Consultation 2**) is the second of two consultations to ensure relevant parties have adequate opportunity to engage on the extensive changes to the ST PASA process. In October 2025, AEMO completed the first consultation procedure to set out the content of the ST PASA Procedure and the Reliability Standard Implementation Guidelines (**RSIG**) for the ST PASA replacement project (**Consultation 1**).

Consultation 2 will consult on changes to the Reserve Level Declaration Guidelines (**RLDG**) published by AEMO under NER 4.8.4A(a). The RLDG describe how AEMO assesses the probability of capacity reserves being insufficient to avoid load shedding given reasonably foreseeable conditions and events. AEMO is currently implementing a replacement for the ST PASA, which requires a number of new and revised procedures and guidelines. This consultation proposes changes to the RLDG, consequential amendments to the spot market operations timetable published under NER 3.4.3, and some additional amendments to the ST PASA Procedure under NER 3.7.3(d) that were foreshadowed in Consultation 1. These changes will allow the ST PASA replacement to continue to support power system operations, AEMO decision-making and market information during the energy transition. This will also aid AEMO's ability to meet NER requirements and the national electricity objective (**NEO**).

The detailed sections of this consultation paper include more information on the proposal and AEMO's reasons for making it.

Consultation notice

AEMO is now consulting on this proposal and invites written submissions from interested persons on the issues identified in this paper to STPASAREplacement@aemo.com.au by 5:00 pm (Melbourne time) on 10 February 2026.

Submissions may make alternative or additional proposals you consider may better meet the objectives of this consultation and the national electricity objective in section 7 of the National Electricity Law. Please include supporting reasons.

Before making a submission, please read and take note of AEMO's consultation submission guidelines, which can be found at <https://aemo.com.au/consultations>. Subject to those guidelines, submissions will be published on AEMO's website.

Please identify any parts of your submission that you wish to remain confidential, and explain why. AEMO may still publish that information if it does not consider it to be confidential, but will consult with you before doing so. Material identified as confidential may be given less weight in the decision-making process than material that is published.

Submissions received after the closing date and time will not be valid, and AEMO is not obliged to consider them. Any late submissions should explain the reason for lateness and the detriment to you if AEMO does not consider your submission.

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Map showing proposed zones

1. Stakeholder consultation process

As required by NER clauses 4.8.4A(a), 3.7.3(d) and 3.4.3(b), AEMO is consulting on amendments to the Reserve Level Declaration Guidelines (**RLDG**), consequential changes to the spot market operations timetable, and other changes to the ST PASA Procedure in accordance with the standard rules consultation procedure in NER 8.9.2.

Note that this document uses terms defined in the NER, which are intended to have the same meanings. There is a glossary of additional terms and abbreviations in Appendix A.

AEMO’s indicative process and timeline for this consultation are outlined below. Future dates may be adjusted and additional steps may be included if necessary, as the consultation progresses.

Consultation steps	Dates
Industry Technical Workshop on participant outputs, lack of reserve framework, market notices and energy optimisation	17 December 2025
Consultation paper published	12 January 2026
Submissions due on consultation paper	10 February 2026
Industry Technical Workshop on energy optimisation modelling	TBA
Draft report published	9 April 2025
Industry Technical Workshop on ST PASA forecasting methodology and modelling results	TBA
Submissions due on draft report	Expected 7 May 2026
Final report published	Expected 3 July 2026

This is the second (and final) of two consultations for the ST PASA Replacement Project. Consultation 1 established a new ST PASA Procedure and made some consequential changes to the RSIG. Some items from Consultation 1 were carried forward to this Consultation 2 (this consultation). These are summarised in Appendix D.

2. Background

2.1. Context for this consultation

AEMO is replacing the ST PASA engine following a series of power system incidents that highlighted that the existing PASA engine required improvements to model the range of conditions needed for AEMO to operate the power system securely and reliably.

AEMO, through the Updating Short Term PASA rule change, is implementing a principles-based framework, linked to a PASA objective, to guide AEMO's administration of ST PASA and govern the ST PASA process.

This consultation paper sets out AEMO's proposal on the changes to the content of the RLDG to incorporate the new ST PASA process, to align it with NER 3.7.3, as amended by the National Electricity Amendment (Updating Short Term PASA) Rule 2022 No. 4. The consultation includes minor consequential amendments that will be required for the spot market operations timetable and the ST PASA Procedure as designs on the ST PASA replacement project are progressed.

This consultation is a continuation from two consultations completed during 2025¹. AEMO has included for consideration topics suggested from Consultation 1, which were considered out of scope for that consultation.

2.2. NER requirements

The RLDG are published by AEMO under NER 4.8.4A(a). The guidelines define how AEMO determines a lack of reserve (LOR) condition. The RLDG must:

- describe how AEMO assesses the probability of capacity reserves being insufficient to avoid load shedding,
- describe how the probability assessment applies in relation to different periods of time, and
- specify at least three probability levels at which AEMO will declare a LOR condition.

The probability assessment must align with good industry practice and consider:

- actual and forecast power system conditions and environmental or other similar conditions,
- the likelihood of the occurrence and impact on the power system of events that are foreseeable in nature but unpredictable in timing, and
- a prudent allowance for forecast error.

The reliability standard, defined in NER 3.9.3C, sets the maximum expected unserved energy which the RLDG operationalises by establishing the three thresholds for lack of reserves based on probabilistic assessments and contingency analysis. The RSIG published under NER 3.9.3D link a LOR2 or LOR3 condition with a potential exceedance of the reliability standard.

¹ See AEMO, *Consultation of ST PASA Procedure and related documents*. Final report 24 February 2025, at <https://www.aemo.com.au/consultations/current-and-closed-consultations/st-pasa-procedures-and-related-documents-consultation> and *Consultation on ST PASA Replacement Project Procedures*. Final report 16 October 2025, at <https://www.aemo.com.au/consultations/current-and-closed-consultations/consultation-on-st-pasa-replacement-project-procedures>.

The levels specified in the RLDG are used to determine whether AEMO should exercise supply scarcity procedures². AEMO discussed this in the draft report of Consultation 1 in its assessment of the role of the regional reference node test in the design of the LOR framework³.

2.3. The national electricity objective

Within the specific requirements of the NER applicable to this proposal, AEMO will seek to make a determination that is consistent with the NEO and, where considering options, to select the one best aligned with the NEO.

The NEO is expressed in section 7 of the National Electricity Law as:

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.*

² AEMO, SO_OP_3703 Short Term Reserve Management, December 2025, at <https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/system-operations/power-system-operation/power-system-operating-procedures>.

³ AEMO, *Consultation on ST PASA Replacement Project Procedures. Draft Report*, August 2025, section 4.6.2, at <https://www.aemo.com.au/consultations/current-and-closed-consultations/consultation-on-st-pasa-replacement-project-procedures>.

3. Proposal discussion

3.1. Description and effect of proposal

AEMO is seeking stakeholder input to the revision of the RLDG, and consequential amendments to the spot market operations timetable and SO_OP_3703 Short Term Reserve Management and *ST PASA Procedures* for the ST PASA replacement project which will specify, among other things:

- A methodology for forecasting and assigning uncertainty to demand and supply,
- modelling assumptions for assessing power system security and reliability, and
- a methodology for assessing supply deficits and application to the National Electricity Market (**NEM**) reliability framework

AEMO will also be seeking input on spot market operations timetable and some outstanding issues that were raised in previous consultations but deferred given they were better addressed in terms of timing as part of this consultation.

3.2. How AEMO proposes to assess probability of capacity reserves being insufficient

The proposed demand side methodology was presented at Stakeholder Workshop #4 in July 2022⁴ and covered forecasting, uncertainty, validation and market information.

The main elements of the methodology described in the July 2022 presentation are summarised below.

3.2.1. Uncertainty measures

- **Forecast uncertainty margin** – AEMO would calculate an uncertainty margin for each demand and supply node, expressed in megawatts (**MW**), representing the expected conditional forecast or availability error at a specified confidence level.
- **Conditional factors** – the margin varies with weather conditions, time horizons, demand types, and fuel sources.
- **Statistical approach** – margins are derived using historical forecast errors to calibrate confidence intervals dynamically based on conditional factors.
- **Final selection** – margins are validated through the backcasting methodology, which applies different permutations of uncertainty margins for each run type and assessed on historical periods, so that the final set of margins can be determined.
- **Application** – these margins are added to demand forecasts and subtracted from supply capacities before each ST PASA run, ensuring probabilistic robustness in reserve adequacy assessments.

⁴ AEMO, *Stakeholder Workshop 4 Uncertainty Margins*, 21 July 2022, at https://www.aemo.com.au/-/media/files/initiatives/st-pasa-replacement-project/stakeholder-workshop-4-uncertainty-margins.pdf?rev=6284b52cdd1e444992a2ed173d0c79cb&sc_lang=en.

3.2.2. Forecast demand and cleared supply

The elements of demand forecasting are summarised below and covered in more detail in the workshop presentation.

- **Granularity** – AEMO prepares demand forecasts for approximately 1,700 nodes across the NEM, ensuring nodal-level accuracy for both scheduled and semi-scheduled resources.
- **Methodology** – forecasts are based on operational demand, adjusted for embedded generation and grid losses. Rather than predict the power demand at each node, AEMO proposes to target a forecast regional demand and the Regional Nodal Rate for each node.
- **Sent out basis** – electricity consumed for the purpose of generating electricity (such as auxiliary load) cannot be shed during a supply shortfall without reducing supply capacity. To avoid this, forecast auxiliary *load* at each node is netted off from the each nodal demand.⁵
- **Integration** – these forecasts feed directly into the ST PASA engine, forming the baseline for supply-demand adequacy assessments.
- **Cleared supply** – equal to the sum of dispatched net resources (generation, loads or bidirectional units) in the ST PASA engine.

3.2.3. ST PASA engine runs

- **Security-constrained economic dispatch** – The ST PASA engine performs multiple runs over a seven-day outlook, iterating between linearised network power flow and optimal dispatch to identify potential deficits.
- **Run types:**
 - **Warning run** – forecasting probability of shedding load after occurrence of a credible contingency using higher uncertainty margins than the other runs (subject to secure limits).
 - **Reliability run** – forecasting probability of shedding load after occurrence of any credible contingency (subject to secure limits).
 - **Base run** – forecasting probability of shedding load without any credible contingency occurring (subject to satisfactory limits).
- **Deficit calculation** (for each Run Type) – at a node, the deficit will be
Forecast Demand (plus uncertainty) – Cleared Supply
These deficits will be aggregated by zone and region for reporting as market information.

3.2.4. Validation of the system

Validation of the system addresses two aspects of the ST PASA Replacement:

- model validation to ensure models of uncertainty margins and nodal load forecasts are fit for purpose, and
- system testing and backcasting to integrate forecasting components with the engine, determine performance over extended historic periods and consult on appropriate confidence levels.

⁵ AEMO, *Demand terms in EMMS Data Model*, July 2025, at https://www.aemo.com.au/-/media/files/electricity/nem/security_and_reliability/dispatch/policy_and_process/demand-terms-in-emms-data-model.pdf.

See the workshop presentation on uncertainty margins⁴. Initial backcasting is scheduled to commence early in 2026 with the results, including proposed confidence levels, to be published with the Draft Report to this consultation. AEMO plans ongoing validation of the system before the ST PASA system goes live and following go-live. AEMO expects backcasting to be conducted quarterly, which matches the cycle used for determining the forecast uncertainty measure in the current ST PASA.

Questions – probability assessment methodology

- 1 Do you support AEMO’s proposed approach to assessing the probability of insufficient capacity reserves, including the use of forecast uncertainty margins and backcasting? Are there alternative methodologies or additional factors you believe should be considered?
- 2 Are the proposed methods for integrating demand and supply uncertainty into the ST PASA engine runs (Warning, Reliability, Base) appropriate for capturing the range of operational risks? If not, what improvements would you suggest?

3.3. How AEMO proposes to apply the probability assessment in relation to different periods

AEMO’s assessment of the probability of insufficient capacity reserves varies according to the forecast horizon, reflecting the different levels of uncertainty and operational flexibility inherent in each period. This ensures that reserve declarations are both timely and proportionate to the risk of load shedding under reasonably foreseeable conditions.

The ST PASA forecast horizon is seven days. As with the current pre-dispatch (**PD**) and ST PASA, AEMO is considering whether to employ a similar framework by reporting ST PASA in two horizons – pre-dispatch and near-term – to maintain consistency with existing practice. This would also allow the PD horizon to be published faster.

3.3.1. Pre-dispatch horizon

- **Coverage** – from current time to the end of the most recently published pre-dispatch schedule (typically up to two days).
- **Method** – probability assessment integrates Warning, Reliability and Base runs from the ST PASA engine. See Section 3.2.3.
- **Purpose** – provides actionable signals for immediate operational decisions, including intervention if required.

3.3.2. Near-term horizon

- **Coverage** – six days from the end of the pre-dispatch horizon.
- **Method** – probability assessment integrates Warning, Reliability and Base runs from the ST PASA engine. See section 3.2.3.

- **Purpose** – provides signals for operational decisions, including intervention if required, and consistent with requirements to determine the latest time to intervene under NER 4.8.5A.

Questions – application to different time horizons

- 3 Is the proposed split between pre-dispatch and near-term horizons for reporting reserve conditions clear and effective? Would you prefer a different approach to time horizon segmentation or reporting?
- 4 Do you have feedback on how probability assessments should be applied or reported across different forecast periods (for example, same-day, next day, 2–7 days ahead)?

3.4. Proposed approach to probability-based reserve level declarations

3.4.1. Specifying probability levels

To be consistent with NER 4.8.4A(b)(3), AEMO will define three distinct probability thresholds for insufficient reserves within a specified timeframe. The three probability thresholds are linked to the ST PASA Engine Runs (see Section 3.2.3). Each threshold will correspond to a declaration level, similar in intent to the current LOR1, LOR2, and LOR3 classifications, but expressed in probabilistic terms:

- **Condition 1 (Low Probability of load shedding)** – indicated in the Warning Run by a deficit in a relevant region.
 - *Purpose* – early signal for participants.
- **Condition 2 (Moderate Probability)** – indicated in the Reliability Run by a deficit in a relevant region.
 - *Purpose* – signal for participants to consider voluntary actions and that AEMO is considering intervention options.
- **Condition 3 (High Probability)** – indicated in the Base run by a deficit in a relevant region.
 - *Purpose* – signal for participants that supply scarcity procedures are likely or underway.

The reserve condition in a region will be the highest probability indicated by the three run types. For example, if the warning (Condition 1) and reliability (Condition 2) runs both indicate a regional deficit, then the region will be reported to be at Condition 2. These thresholds will be calibrated through consultation to ensure alignment with the reliability standard and operational practice.

AEMO does not propose more than the minimum levels required by the NER.

3.4.2. Indicating increasing probability of load shedding

To provide clear and actionable signals, AEMO proposes to publish probability bands alongside reserve forecasts for each relevant timeframe. This will allow participants to observe the progression of risk from Condition 1 through Condition 3 as conditions evolve. Key features include:

- **Visual indicators** – probability bands displayed in ST PASA reports, showing the likelihood of a reserve shortfall.

- **Uncertainty Measure Updates** – probability assessments refreshed periodically using the backcasting methodology described below. Initially planning to update quarterly.

3.4.3. Terminology – continuity versus clarity

AEMO could continue using the existing LOR terminology (LOR1, LOR2, LOR3) or choose an alternative terminology:

- **Option A** – retain LOR labels but redefine them explicitly as probability-based triggers.
- **Option B** – introduce new terminology to distinguish the probabilistic framework from the legacy approach.

Questions – probability thresholds and reserve condition declarations

- 5 Are the three proposed reserve condition thresholds (Conditions 1-3) for declaring reserve conditions appropriate and understandable? Should the thresholds be defined differently or calibrated using other criteria?
- 6 Do you support the use of visual probability bands in ST PASA reports to communicate the likelihood of reserve shortfalls? Are there other communication tools or formats that would improve clarity for participants?

Questions – terminology and communication

- 7 Should AEMO retain the existing LOR1/2/3 terminology for reserve conditions, or introduce new terms to reflect the probabilistic framework? Please explain your preference.
- 8 Are there aspects of the proposed terminology or communication approach that could be improved to enhance stakeholder understanding and market response?

3.5. Aggregation to support reserve condition declarations

3.5.1. Zonal aggregation

AEMO is proposing to aggregate around 1,700 demand nodes into 20 zones, based on the existing forecast zones used for defining constraints⁶ in dispatch, pre-dispatch and the current ST PASA. The proposed zones are listed in Appendix B. A map showing the boundaries of the proposed zones is published with this paper.

Subject to Section 3.5.22, zonal deficits would be reported to the market and remedied as a system security issue. This will allow the new ST PASA to distinguish between deficits in remote parts of the network from deficits that are close to the major load centres of a region (that is, the regional reference node).

⁶ AEMO, *Congestion Implementation Guidelines*, April 2023, Table 2 Right hand side types 'E' Entered value, at <https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/system-operations/congestion-information-resource>.

3.5.2. Regional aggregation and declaration of reserve conditions

In Consultation 1, submissions discussed LOR declarations based on zones or regions. AEMO proposes to continue to use regions to declare LOR conditions. AEMO discussed this in the draft report of Consultation 1⁷.

To facilitate this, AEMO is proposing to associate regional reserve declarations with the zone that contains the regional reference node (**RRN zone**).

A reserve condition in a region will not be considered to be declared unless:

- the engine reports a deficit in an RRN zone, OR
- the engine reports a deficit at an effective connection point in an RRN zone (see Section 3.5.4) even though the engine does not report a deficit in that zone.

Shortfalls in zones that are not RRN zones are not managed under the reliability framework and will not be declared as a conditions. Actual shortfalls in these zones will be managed if necessary as potential load shedding required for maintenance of power system security.

Appendix C shows an example of the application of effective connection points to declaration of lack of reserve conditions under the proposed Reliability framework for the ST PASA replacement.

Market notices for regional shortfalls are described in Section 3.6.1.

3.5.3. Zonal aggregation for management of power system security shortfalls

In Consultation 1, submissions noted that unserved energy is not necessarily required to only occur at regional reference nodes (**RRNs**). AEMO agreed⁷, noting the proposed reliability framework would accommodate this by identifying supply deficits in zones that do not contain the RRN. In such situations, AEMO would follow the Supply Scarcity Procedures, but would not declare a lack of reserve condition under NER 4.8.4.

Market notices for zonal shortfalls are described in Section 3.6.2.

3.5.4. Role of effective connection points

The Reliability Panel has established equitable load shedding arrangements during major supply shortfalls⁸. The guidelines define “effective connection points” when considering locations for load shedding.

ST PASA has been configured to identify effective connection points, which will be used to identify deficits due to power system reliability and power system security (usually due to network limits affecting supply to remote nodes). Any RRN zone that contains an effective connection point will be considered in any declaration of a lack of reserve condition in a region.

⁷ AEMO, *Draft report for ST PASA Replacement Project – Procedure consultation*, Section 4.6.2, at <https://www.aemo.com.au/consultations/current-and-closed-consultations/consultation-on-st-pasa-replacement-project-procedures>.

⁸ Reliability Panel, *Guidelines for Management of Electricity Supply Shortfall Events*, 21 December 2009, at <https://www.aemc.gov.au/sites/default/files/content//Guidelines-for-Management-of-Electricity-Supply-Shortfall-Events.PDF>.

Questions – aggregation and declaration criteria

- 9 Do you agree with the proposed approach to zonal and regional aggregation for reserve condition declarations? Should reserve conditions be declared at the zone level, region level, or both?
- 10 Is the proposed use of effective connection points for associating regional reserve declarations with RRN zones appropriate? Are there alternative approaches you would recommend?

3.6. Market information and market notices

AEMO will continue to provide information through existing channels for communicating reserve conditions, including the NEM participant data model, NEM reports⁹ and the AEMO website.

3.6.1. Market notices for reserve conditions

AEMO will maintain the current approach for declaring LOR conditions in ST PASA as outlined in AEMO’s Power System Operating Procedure for Short Term Reserve Management (SO_OP_3703¹⁰):

- Forecast Condition 1 notices will be published, updated and cancelled in the 1400 hr run of ST PASA. AEMO will not declare conditions for Condition 1 at other times.
- Forecast Condition 2 and 3 notices will be published and updated as soon as possible if a condition is identified.

Conditions identified in the current PD PASA timeframe would continue to be declared as described in procedure SO_OP_3703.

Trigger thresholds for conditions have not yet been determined but will be provided in the Draft Report as part of this consultation.

As noted in Section 3.5.2, reserve conditions will only be declared when identified in RRN zones.

3.6.2. Market notices for other load shedding events

Where AEMO determines it must intervene that does not require Reliability load shedding, AEMO will notify the market in accordance with NER 4.8.5A Determination of the latest time for AEMO intervention, but will not declare a lack of reserve condition..

3.6.3. Participant data model changes

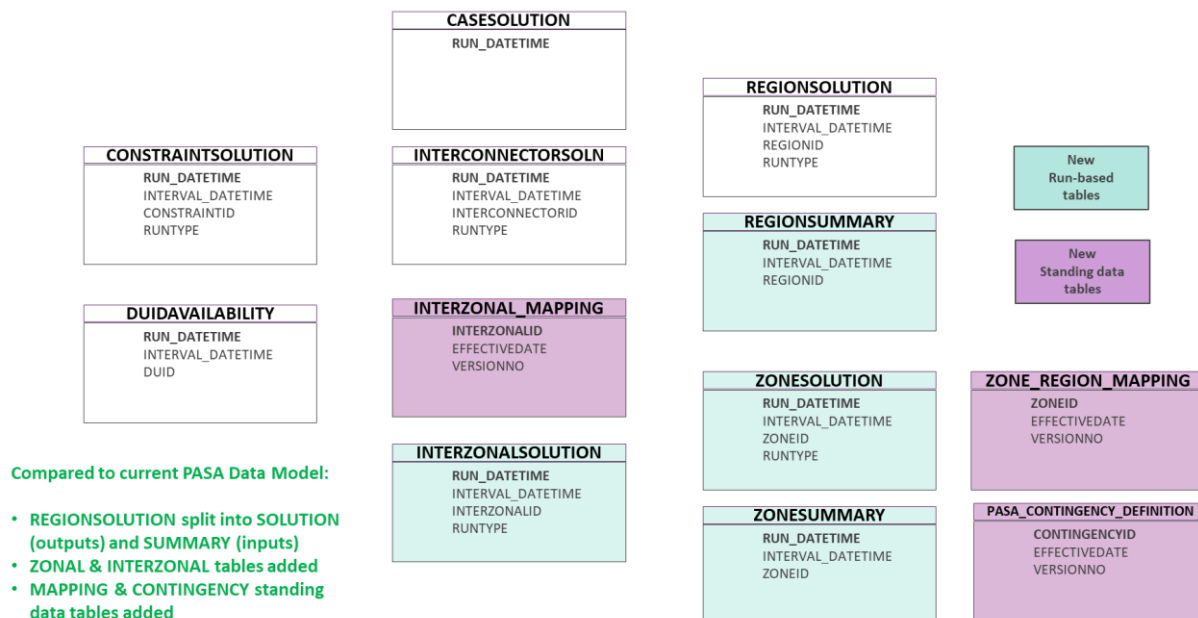
AEMO will provide information to the market through new tables that are based on the existing model, with some proposed additional tables. Initially, the tables will coexist with the current ST PASA data model. Once the

⁹ NEM reports are available through NEMWeb at <https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/data-nem/market-data-nemweb>.

¹⁰ AEMO, *SO_OP_3703 Short Term Reserve Management*, December 2025, at https://www.aemo.com.au/-/media/files/electricity/nem/security_and_reliability/power_system_ops/procedures/so_op_3703-short-term-reserve-management.pdf.

new ST PASA has been established and proven, the existing tables will no longer be published. AEMO will develop and consult on a transition plan that will include retirement of legacy tables.

Figure 1 Participant data model proposal



Changes to AEMO market systems are managed through AEMO’s Technical Specification Roadmap, with the production release of the ST PASA changes tentatively scheduled for early June 2026¹¹. In addition to the Technical Specifications process, AEMO is separately seeking early views on the proposed data changes to integrate with the production release schedule. A spreadsheet with details of the data model changes has been separately provided for comment.

Questions – market information and notices

- 11 Are the proposed arrangements for market notices (timing, content, frequency) for reserve conditions and zonal shortfalls suitable? What changes, if any, would improve the usefulness of these notices?
- 12 Do you have suggestions for how AEMO should manage the transition to new participant data model tables and the communication of these changes to the market?

3.7. RLDG review and amendment process

AEMO will review the RLDG at least once every four years, in accordance with NER 4.8.4A(b)(4). The review will consider changes in market conditions, operational experience, stakeholder feedback, and developments in

¹¹ AEMO, *Technical Specifications Portal*, at <https://www.aemo.com.au/energy-systems/market-portals-directory/tech-specs>.

forecasting methodology to ensure the guidelines remain fit for purpose and consistent with good electricity industry practice.

AEMO may amend the RLDG at any time to address emerging issues or stakeholder requests. When amending the guideline, AEMO will comply with the Rules consultation procedures.

Questions – review and amendment process

- 13 Are the proposed processes for reviewing and amending the RLDG (including stakeholder input and consultation procedures) sufficient to ensure the guidelines remain fit for purpose?
- 14 Do you have suggestions for additional triggers or mechanisms for reviewing or amending the RLDG outside the standard four-year review cycle?

3.8. Spot market operations timetable

Minor amendments to the timetable will be proposed in the Draft Report based on results of testing.

3.9. SO_OP_3703 Short Term Reserve Management

Minor amendments to procedure SO_OP_3703 may be required based on outcomes of this consultation and testing.

3.10. Items carried forward from Consultation 1

These are shown in 0. Two items have yet to be confirmed:

- clearer examples of how confidence levels would be applied – this will be discussed in a second technical workshop to be held in early 2026, and
- recommendations on application of the reserve declaration process – see Section 3.4.1.

Technical availability of semi-scheduled resources cannot be delivered as part of the ST PASA project. This has been determined as out of scope for the Short Term PASA replacement and will be managed separately through AEMO's renewables forecasting process.

Generation contingency modelling and dispatch below minimum load levels will be investigated and the results will be discussed in one of the technical workshops and the draft consultation report.

3.11. How the proposal meets the objective

This proposal introduces a transparent, probability-driven method for reserve declarations, enabling participants to better anticipate and respond to emerging risks. It also provides flexibility in presentation – either through redefined LOR labels or new terminology – to minimise confusion while signaling increasing probability of load shedding.

3.12. General issues

On completion of industry testing and a monitoring period (one option could be a parallel run with the current ST PASA), the changes from this consultation and from Consultation 1 will be confirmed in a transition plan for go-live of the new ST PASA.

Questions – general and other feedback

- 15 Are there any other issues, risks, or opportunities related to the proposed RLDG that you wish to raise?
- 16 Do you have feedback on the clarity, structure, or accessibility of the draft guidelines and consultation process?

4. Drafting for proposed changes

AEMO will provide proposed drafting of the following consulted documents with the Draft Report.

- Reserve Level Declaration Guidelines,
- Spot Market Operations Timetable, and
- Power System Operating Procedure for Short Term Reserve Management (SO_OP_3703).

AEMO may also identify additional changes to the *ST PASA Procedures*, which will also be included with the Draft Report

Appendix A. Glossary

This glossary defines terms used throughout this paper. Words and phrases defined in the NER have the meaning given to them in the NER.

Term or acronym	Meaning
AEMO	Australian Energy Market Operator
Backcasting	A validation process that reruns the ST PASA engine using historical data to simulate how the model have performed under past conditions..
Cleared Supply	Equal to the sum of dispatched net resources (generation, loads or bidirectional units) in the ST PASA engine
Consultation 1	Consultation on a new ST PASA Procedure and Reliability Standard Implementation Guidelines completed in October 2025.
Consultation 2	This consultation, covering a new Reserve Level Declaration Guideline and consequential amendments to the spot market operations timetable and relative System Operating Procedures.
Demand	The forecast electrical load at a node or region, expressed in megawatts (MW). In ST PASA, demand is based on a 50% probability of exceedance (POE), adjusted for embedded generation and uncertainty margins.
Effective Connection Point	As defined in the Reliability Panel guidelines for management of supply shortfall events, a connection point at which continued reduction is effective in reducing a supply shortfall, taking into account network constraints at all times.
FUM	Under the current ST PASA, the Forecast Uncertainty Measure (the number of MW representing the level of forecasting uncertainty)
LOR	Lack of reserve – a condition declared by AEMO when available capacity reserves fall below defined thresholds, indicating increasing risk of load shedding. The current definition will change as a result of this consultation. The title of the condition may also change
LOR1	Under the current ST PASA, the threshold determined by the larger value of either the forecast uncertainty measure or the sum of the two largest credible risks in the region.
LOR2	Under the current ST PASA, the threshold determined by the larger value of either the forecast uncertainty measure or the largest credible risk in the region.
LOR3	Under the current ST PASA, the threshold is when forecast reserve for a region is at or below zero.
NEO	National Electricity Objective
NER	National Electricity Rules
Node	A physical location in the transmission or distribution network, typically corresponding to a busbar or connection point in the power system.
POE	Probability of exceedance – a statistical measure used in forecasting. For example, “50% POE” means there is a 50% chance that actual demand will exceed the forecast value.
Regional Nodal Rate	A calculated allocation factor to distribute forecast regional load across individual nodes.
RERT	Reliability and Emergency Reserve Trader – a mechanism that allows AEMO to procure additional reserves to maintain system reliability.
RLDG	Reserve Level Declaration Guidelines – the guidelines published by AEMO under NER 4.8.4A(a) describing how reserve levels and lack of reserve conditions are determined.
RRN	Regional reference node – a location on a transmission network or distribution network to be determined for each region by the AEMC in accordance with NER Chapter 2A ¹² .
RRN Zone	A zone that contains the RRN.

¹² AEMO, *Loss factors and regional boundaries*, at <https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/market-operations/loss-factors-and-regional-boundaries>. Section 7 defines the regions and regional reference nodes for the year of publication.

Term or acronym	Meaning
RSIG	Reliability Standard Implementation Guidelines – the guidelines published under NER 3.9.3D linking lack of reserve conditions to the reliability standard.
Run Types – Warning Run	Forecasting probability of shedding load after occurrence of a credible contingency using higher uncertainty margins than the other runs (subject to secure limits).
Run Type – Reliability Run	Forecasting probability of shedding load after occurrence of any credible contingency (subject to secure limits).
Run Type – Base Run	Forecasting probability of shedding load without any credible contingency occurring (subject to satisfactory limits).
ST PASA	Short Term Projected Assessment of System Adequacy – a process and tool used by AEMO to forecast power system adequacy over a short-term horizon (typically seven days).
Supply scarcity procedures	Has the meaning given to it in SO_OP_3703 Short Term Reserve Management. In summary, these are: <ul style="list-style-type: none"> • exercising RERT under NER 3.20, • issuing a direction under NER 4.8.9, and • issuing a clause 4.8.9 instruction under NER 4.8.9.
Zone	A group of demand nodes aggregated for reporting and analysis, proposed to be based on existing forecast zones used in the Constraint Implementation Guidelines ¹³ .

¹³ AEMO, Constraint Formulation Guidelines, on the Congestion Information Resource at <https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/system-operations/congestion-information-resource>.

Appendix B. Zonal aggregation

Table 1 Proposed zone definitions

Zone	Name	Network description
1	Q_FARNORTH	Starting from Kareeya Power Station and north of the power station
2	Q_ROSS	South of Q_FARNORTH to Clare Solar Farm
3	Q_NORTH	Area centred around Mckay
4	Q_CENTRAL	Area centred around Boyne Island and Gladstone Power Station
5	Q_SOUTHWEST	Western section from Q_CENTRAL to NSW border, including major south coal-fired power stations
6	Q_SOUTHEAST*	Eastern section from Q_CENTRAL to NSW border, including the Queensland Regional Reference Node.
7	N_LISMORE	Coastal area centered around Lismore
8	N_NORTH	Northern NSW grid from Bayswater Power Station to the Queensland border, excluding Lismore
9	N_CENWEST	Area centered around Wellington from Mt Piper Power Station and including major western solar farms
10	N_SYDNEY*	Area centred around Newcastle, Sydney and Wollongong, including the NSW Regional Reference Node
11	N_CANBERRA	Area centred around Canberra to eastern coast
12	N_SWNSW	Area centred around Wagga, including Snowy scheme and west to the SA border
13	V_STATEGRID	All Victoria excluding Melbourne
14	V_MELBOURNE*	Area centred around Melbourne, including the Victorian Regional Reference Node
15	S_SOUTHEAST	Area covering south east gas and wind generation and interconnection to Victoria
16	S_ADELAIDE*	Area centred around Adelaide, including SA Regional Reference Node.
17	S_RIVERLAND	Area covering major connection to NSW and north east solar farms
18	S_NORTH	Area covering supplies to northern mines and solar and wind farms
19	T_NORTH*	Northern half of Tasmania, including Tasmanian Regional Reference Node
20	T_SOUTH	Area centred around Hobart and major southern hydro generation

* Indicates proposed RRN Zones

Appendix C. Condition declaration example

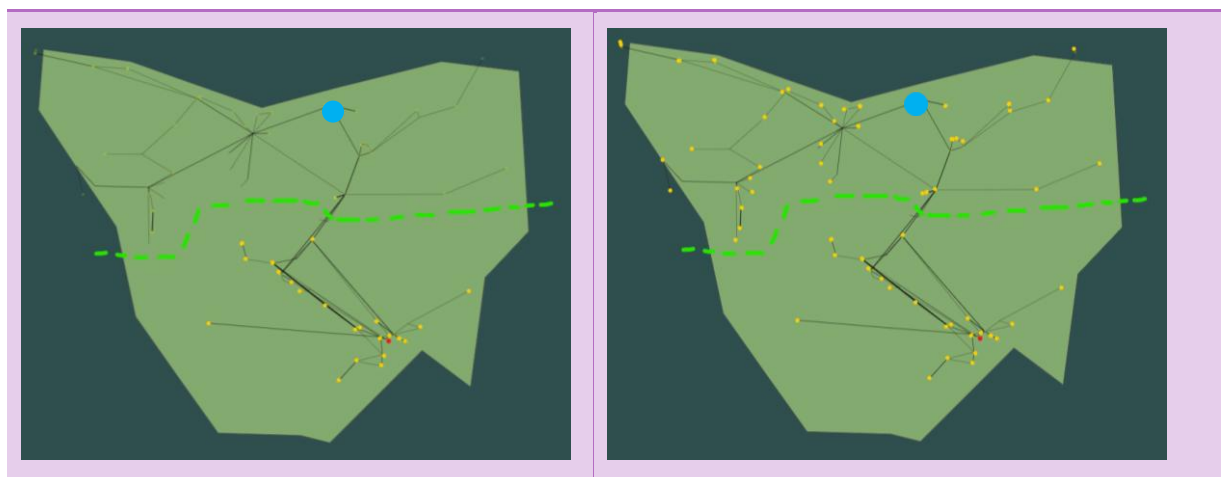
This example shows the application of effective connection points to distinguish between a deficit due to regional supply shortages and due to a security-related shortage.

Situation:

- Deficit affecting south Tasmania only.
- Congestion between north and south separates the deficit from the RRN.
- ST PASA engine identifies deficit near Hobart and effective connection points in the south only.
- No LOR condition declared, with any actual deficits managed as security.

Situation:

- Deficit affecting north and south Tasmania.
- No congestion between north and south.
- ST PASA engine identifies deficit near Hobart and effective connection points around the Region.
- Lack of reserve condition declared and deficits managed under the reserve framework.



Key:

Red – deficits in ST PASA

Yellow – effective connection points

Blue – Regional Reference Node

Appendix D. List of submissions and AEMO responses

Table 2 Issues raised that have been carried forward to Consultation 2

No.	Stakeholders	Issue	Reference in this paper
1	EUAA, Hydro Tasmania, Shell Energy	Submissions requested clearer examples of how confidence levels would be applied in uncertainty margin calculations	This will be discussed in one of three technical workshops.
2	EUAA, Shell Energy, Hydro Tasmania	<p>Submissions commented on the potential reserve level declaration process for the ST PASA replacement. These comments included:</p> <ul style="list-style-type: none"> • Recommendation that LOR declarations should be based on zones rather than regions to improve the accuracy of market responses. • Request for details on node identification, zone identifications and the process for issuing LOR notices. • Support for use of nodal analysis for system reliability assessment, noting that the reliability standard is an annual unserved energy assessment rather than a short-term unserved energy outcome. • Recommendation the linkage of the reliability standard to the regional reference node be removed from the RSIG. 	Refer Section 3.4.1.
3	Mercuria	<p>Requested publishing aggregate equivalent “technical availability” measure for semi-scheduled generators. Mercuria defined technical availability as the minimum of:</p> <ul style="list-style-type: none"> • PASAAVAILABILITY in ENERGY offer, • UPPERMWLIMIT, and • registered capacity allowing for ELEMENTS_UNAVAILBLE, <p>disregarding energy limits due to wind and solar conditions, for example.</p>	This has been determined as out of scope for the Short Term PASA replacement and will be managed separately through AEMO’s renewables forecasting process.
4	EUAA, Shell Energy	Generator contingency modelling and the potential for dispatch below technical minimum loads for some generators will be tested by AEMO before procedures are finalised. This may mean that specific aspects of the ST PASA Procedure will need to be revised in Consultation 2.	This will be discussed in one of the three technical workshops, and modelling outcomes discussed in the Draft Report of this Consultation.