

ST PASA Procedure Consultation Workshop

24 July 2024



1. Welcome

We acknowledge the Traditional Owners of country throughout Australia and recognise their continuing connection to land, waters and culture.

We pay respect to their Elders past and present.

Agenda

#	Time	Topic	Presenter(s)
1	1:00-1:05pm	Welcome and opening	Chris Muffett
2	1:05-1:15pm	NER - Updating Short Term PASA rule change (2022)	Nicole Nsair
3	1:15-2:00pm	Development of ST PASA procedure <ul style="list-style-type: none">• How AEMO will prepare inputs for the ST PASA• Detailed ST PASA information AEMO will publish• Processes / methodologies to produce the ST PASA information• ST PASA time-period and any other information	Sujeewa Rajapakse
4	2:00-2:15pm	Consultation Feedback and Timeline	Nicole Nsair
5	2:15-2:45pm	Questions and Answers	Nicole Nsair

Appendix A:
Competition law meeting protocol and AEMO forum expectations

Appendix B:
Reference information

"Please note that this meeting will be recorded by AEMO and may be accessed and used by AEMO for the purpose of compiling notes. By attending the meeting, you consent to AEMO recording the meeting and using the record for this purpose. No other recording of the meeting is permitted"

2. NER – ‘Updating Short Term PASA rule change’ (2022)

NER - Updating Short Term PASA rule change 2022 (1/2)

Final Determination (5 May 2022)

- Requires AEMO to,
 - develop and publish ST PASA procedures
 - publish forecasts of PASA availability for individual scheduled generating units, scheduled loads, scheduled network service providers and wholesale demand response units
 - to include changes to the definitions of PASA availability and energy constraint
 - to include changes to the ST PASA timeframe to reflect current practices
 - to reflect PASA Objective (see Appendix B: reference information)

➤ NEM Reform Project

NER - Updating Short Term PASA rule change 2022 (2/2)

- Energy constraint and PASA availability
 - AEMO will have flexibility to apply energy constraints regarding ST PASA to be more effective
 - AEMO and market participants will have greater visibility of the actual recall time of plant to improve reliability and security outcomes.

➤ ST PASA Replacement Project

- ST PASA Replacement Project is separate from the ST PASA Procedure consultation.
- Submissions have closed on the 5 July 2024 proposal for extended generator recall times. AEMO is considering submissions (closed on 19 July 2024) and will progress this separately. This will not impact the ST PASA Procedure consultation.
- Further Procedure consultations will be required for commencement of the ST PASA Replacement Project, with AEMO including transitional arrangements as required.

Indicative High-Level timetable

- Updating Short Term PASA rule commences 31 July 2025.
- AEMO must have consulted and published the ST PASA Procedures by 30 April 2025, as a transitional arrangement of 3 months before the commencement of the rule.



Feedback from stakeholders on Procedure consultation workshop – due 9 August

AEMO is proposing to publish the ST PASA Procedures by early February 2025

QUICK REFERENCES

- AEMO – [ST PASA Replacement Project](#)
- AEMC – [Rule Change Determination](#)

3. Development of ST PASA procedure

Discussion points

For the ST PASA Procedure publication of 30 April 2025, AEMO will consult and publish ST PASA Procedure to include:

- How AEMO will prepare inputs for the ST PASA
- Detailed ST PASA information AEMO will publish
- Period to be covered by ST PASA
- The processes or methodologies AEMO will apply to produce the ST PASA information
- Any other information that AEMO considers reasonably necessary to implement the PASA objective

Please consider during the slides what additional information AEMO could provide in the ST PASA Procedure

Existing arrangements

- AEMO is proposing to document the existing arrangements for energy constraints (daily energy constraint) and PASA Availability (24-hour recall)
- This reflects AEMO's current practices.

Refer - [Reliability Standard Implementation Guidelines \(RSIG\)](#) – S. 2.3.2.3 (Appendix B)

Refer [Short Term PASA Process Description](#)

How AEMO will prepare inputs for the ST PASA

AEMO takes into account the following factors:

- Forecast load and non-scheduled generation, including forecasting uncertainties
- Forecast availability of scheduled resources, including any applicable constraints
- Forecast network constraints and notified network outages
- Any other factors AEMO considers relevant having regard to the PASA objective

How AEMO will prepare inputs for the ST PASA

Forecast load and non-scheduled generation, taking into account forecasting uncertainties:

- AEMO power system operating procedure [SO_OP_3710 -Load Forecasting](#)

Reserve Level Declaration Guidelines explains the method of determining Forecast Uncertainty Measure (FUM) and its application in determining LOR trigger levels

How AEMO will prepare inputs for the ST PASA – Non-Bidirectional Units

- PASA only includes scheduled and semi-scheduled generating units, bidirectional units (gen-side) and WDR
- PASA excludes scheduled loads and bidirectional units (load-side)

How AEMO will prepare inputs for the ST PASA – Non-Bidirectional Units

Forecast availability of scheduled and semi-scheduled generating units and WDR, including any applicable constraints:

- Lowest bid *Available Capacity* over the six trading intervals for each HH
 - For semi-scheduled generating units: $\min(\text{Available Capacity}, \text{UIGF})$
- Daily Energy Constraint (if defined in bid)
 - PDPASA: Daily energy available = Daily Energy Constraint – Dispatched Energy since 0400
 - STPASA: Daily energy available = Daily Energy Constraint
 - $\text{Sum}(\text{PASA targets})/2 \leq \text{Daily energy available}$
 - Daily energy available allocated to highest demand periods over trading day
 - PDPASA target \geq Pre-dispatch target from corresponding Pre-dispatch run and HH

How AEMO will prepare inputs for the ST PASA - Bidirectional Units

Forecast availability of scheduled bidirectional units, including any applicable constraints:

PDPASA:

- *Available Capacity* = Daily Energy Constrained Availability from the corresponding Pre-dispatch run and HH

where;

$$\text{Daily Energy Constrained Availability} = \max(0, \min (\text{bid } \textit{Available Capacity} \text{ from last trading interval of HH, Pre-dispatch Initial Energy Storage for HH} / 2))$$

STPASA:

- *Available Capacity* = Lowest bid *Available Capacity* over the six *trading intervals* for each HH
- Daily Energy Constraint = Registered MaxOperationalStateOfCharge (if opted in) else MaxStorageCapacity

How AEMO will prepare inputs for the ST PASA

Forecast network constraints and notified network outages

- Power system operating procedure [SO_OP_3718 - Outage Assessment](#) explains AEMO processes of assessing network outages submitted by TNSPs and the invocation of network constraints
- Network constraints represent the power transfer capability of the network
- Network Outage Schedule is published on AEMO website, updated every half hour.

ST PASA time-period

- Current version of the NER is silent on the Reserve Assessment in the Pre-dispatch timeframe (called PDPASA)
- From 31 July 2025, NER 3.7.3(b),
"The *short term PASA* will cover each *30-minute period* (or such shorter period as determined by AEMO) in at least the seven *trading days* from and including the day of *publication*."

Processes / methodologies to produce the ST PASA information

ST PASA includes two sets of Linear Programs:

- Low Reserve Condition (LRC) runs
- Lack of Reserve (LOR) runs

LRC runs are not used for operational decision making.

Operational decision making is only based on outputs of LOR runs.

Note: Dynamic LOR triggers are used to determine LOR conditions.

LOR Runs

Interconnector Limit 300 MW
in either direction, with both ccts in service,
150 MW with only one cct in service

Interconnector Limit 300 MW
in either direction, with both ccts in service,
150 MW with only one cct in service



Regional Demand (MW)	1200					2000						3000
Regional Generation (MW)	1000					2500						4000
Largest contingency	200					500						500
Largest + Second large contingency	400					1000						1000
LOR Run for StudyRegion = Region A												
Net Interconnector flow	300		From B to A							300		From C to B
LOR2 trigger level	200											
LOR1 trigger level	400											
Total Supply	1300											
Reserve	100											
Reserve condition												
LOR Run for StudyRegion = Region B												
Net Interconnector flow	200		From B to A			100				300		From C to B
LOR2 trigger level						500						
LOR1 trigger level						1000						
Total Supply						2600						
Reserve						600						
Reserve condition												

Method:

- 1 Meet supply demand balance of other regions before the StudyRegion
- 2 Then assess the supply/reserve of the StudyRegion

Detailed ST PASA information AEMO publishes

AEMO publishes STPASAs outputs via:

- PDPASA and STPASAs NEM Reports (via Data Interchange) if subscribed
- Participant Data Model tables (uses these NEM Reports)
- NEMWeb
- AEMO Web Portal

Outputs are grouped in:

- Regional Solution
- Interconnector Solution
- Constraint Solution

Detailed ST PASA information that AEMO publishes

REGIONSOLUTION		
RUN_DATETIME	MAXSURPLUSRESERVE	UIGF
INTERVAL_DATETIME	MAXSPARECAPACITY	SEMISCHEDULEDCAPACITY
REGIONID	LORCONDITION	LOR_SEMISCHEDULEDCAPACITY
DEMAND10	AGGREGATECAPACITYAVAILABLE	LCR
DEMAND50	AGGREGATESCHEDULEDLOAD	LCR2
DEMAND90	AGGREGATEPASAAVAILABLE	FUM
RESERVEREQ	LASTCHANGED	SS_SOLAR_UIGF
CAPACITYREQ	RUNTYPE	SS_WIND_UIGF
ENERGYREQDEMAND50	ENERGYREQDEMAND10	SS_SOLAR_CAPACITY
UNCONSTRAINEDCAPACITY	CALCULATEDLOR1LEVEL	SS_WIND_CAPACITY
CONSTRAINEDCAPACITY	CALCULATEDLOR2LEVEL	SS_SOLAR_CLEARED
NETINTERCHANGEUNDERSCARCITY	MSRNETINTERCHANGEUNDERSCARCITY	SS_WIND_CLEARED
SURPLUSCAPACITY	LORNETINTERCHANGEUNDERSCARCITY	WDR_AVAILABLE
SURPLUSRESERVE	TOTALINTERMITTENTGENERATION	WDR_PASAAVAILABLE
RESERVECONDITION	DEMAND_AND_NONSCHEDGEN	

Detailed ST PASA information that AEMO publishes

INTERCONNECTORSOLN
STUDYREGIONID
RUN_DATETIME
INTERVAL_DATETIME
INTERCONNECTORID
CAPACITYMWFLOW
CAPACITYMARGINALVALUE
CAPACITYVIOLATIONDEGREE
CALCULATEDEXPORTLIMIT
CALCULATEDIMPORTLIMIT
LASTCHANGED
RUNTYPE
EXPORTLIMITCONSTRAINTID
IMPORTLIMITCONSTRAINTID

CONSTRAINTSOLUTION
STUDYREGIONID
RUN_DATETIME
INTERVAL_DATETIME
CONSTRAINTID
CAPACITYRHS
CAPACITYMARGINALVALUE
CAPACITYVIOLATIONDEGREE
LASTCHANGED
RUNTYPE

AEMO use of ST PASA outputs to ensure supply reliability

[SO_OP_3703 - Short Term Reserve Management](#) explains how AEMO uses PASA outputs to ensure supply reliability in the short-term timeframe.

Other information

- Given that LRC runs are not used for any operational decision making, AEMO is proposing discontinuing LRC runs.

4. Consultation Feedback and Timeline

Feedback from Participants

- Is there anything that is missing that should be added to the ST PASA Procedure?
 - Are there any material impacts that will impact Participants?
 - Is there anything that requires additional clarification from AEMO?
 - Would participants benefit from additional examples? If yes, what would these be?
 - Any comments on removing LRC runs?
 - Any other observations/comments
- Please send in feedback on these slides by **Friday 9 August 2024**
- NEMReform@aemo.com.au

Indicative Consultation Timetable

Consultation Process	Indicative Dates
Procedure consultation workshop	<i>Completed today</i>
Feedback from stakeholders on Procedure consultation workshop	Friday 9 August 2024
Consultation Paper published	2 September 2024
Submissions due on Consultation Paper	30 September 2024
Draft marked up procedure published	28 October 2024
Submissions due on draft procedure	2 December 2024
Final ST PASA Procedure published	10 February 2025

5. Questions and Answers



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[NEM Reform Electricity Wholesale Consultative Forum](#)



Appendix A: Competition law meeting protocol and AEMO forum expectations

AEMO Competition Law - Meeting Protocol

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

Participants in AEMO discussions **must**:

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

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

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

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

AEMO Forum and Meeting Expectations

This charter explains expectations regarding participation and behavior in the Australian Energy Market Operator (AEMO)'s stakeholder forums.

Meeting Expectations

All participants will:

- Respect the diversity of the group.
- Speak one at a time – refrain from interrupting others.
- Share the oxygen – ensure that all attendees who wish to have an opportunity to speak are afforded a chance to do so.
- Maintain a respectful stance towards all participants.
- Listen to others' points of view and try to understand others' interests.
- Share information openly, promptly, and respectfully.
- If requested to do so, hold questions to the end of each presentation.
- Remain flexible and open-minded, and actively listen and participate in meetings.
- Abide by COVID-Safe workplace guidelines, if attending a meeting on AEMO's premises.

Roles and Responsibilities

Forum stakeholders agree to:

- Be specific and fact-based in their feedback on a specific workstream or emerging issue;
- Review and provide feedback on papers and reports;
- Relay information to their colleagues or constituents after each meeting and gather information/feedback from their colleagues or constituents, as practicable, before each meeting;
- Maintain a focus on solutions or outcomes that benefit all energy consumers.

AEMO agrees to:

- Provide technical expertise in a manner that is considerate of the audience and their level of expertise;
- Assist participants in understanding issues enough to represent their views;
- Provide all participants the opportunity to voice their views.

Appendix B: Reference information

PASA Objective - NER 3.7.1(b)

The PASA is a comprehensive program of information collection, analysis and disclosure of medium term and short term system security and reliability of supply prospects so that Registered Participants are properly informed to enable them to make decisions about supply, demand and outages of transmission networks in respect of periods up to 2 years in advance (or up to 3 years, where specified).

RSIG - Section 2.3

2.3.2.3. ST PASA scheduled generation capacity

The ST PASA draws information on scheduled *generation* from the *availability* data submitted with generators' market offers. When a *slow-start generating unit* plans to be off-line at a specific time but could operate had it received a direction 24 hours previously, the *PASA availability* of that unit will indicate what capacity AEMO can assume at that specific time.



For more information visit

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