

MINUTES

MEETING: CROWG – Control Room Operations Working Group
DATE: Friday, 8 November 2024
TIME: 9.30am – 12.30pm (AEST/Market Time)
LOCATION: MS Teams Meeting, AEMO Brisbane Office

[Microsoft Teams Meeting Details](#)

NAME	INITIALS	ORGANISATION	NAME	INITIALS	ORGANISATION
Mario Rositano	AB	AEMO	Ben Madafiglio	BF	Iberdrola
Alexis Bowman	AB	AEMO	Jordan Maxwell	JM	Iberdrola
Andrew Bell	ABE	AEMO	Lewis Wand	LW	Iberdrola
Bill Webb	MR	AEMO	Hal Jorgensen	HJ	NEOEN
Muhammad Khan	MK	AEMO	Colin Roberts	CR	Origin Energy
Hoang Tong Ho	HTH	ACEREZ	Elise Janetzki	EJ	Overwatch Energy
Ron Whalen	RW	AusGrid	James Tetlow	JT	Overwatch Energy
Lan Nguyen	LN	AusNet	Jonathan Dyson	JD	Overwatch Energy
Duane Brooks	DB	ElectraNet	Robert McCann	RM	Power Water
Ben Barker	BB	Endeavour Energy	Ed Sellwood	ES	PowerLink
Matt Hogan	MH	Evo Energy	Leanne Maurice	LM	PowerLink
Dane Merkel	DM	Hydro Tasmania	Samuel Humbles	SH	SAPN
James Sherrin	JSH	Hydro Tasmania	Joshi Samudra	JS	Squadron Energy

1 Welcome and Introduction | Mario Rositano

- 1.1 Roll Call taken in person and via MS Teams.
- 1.2 Welcomed current and new members, reviewed the agenda and discussed purpose of the meeting, including continued discussions on topics tabled at the last meeting.

2 Minutes / Actions | Mario Rositano

- 2.1 CROWG Meeting [Minutes 20 August 2024](#) – accepted and seconded by Colin Roberts of Origin Energy.
- 2.2 CROWG Meeting [Actions Register 20 August 2024](#) – reviewed and updated accordingly

3 CROWG Meeting Administration | Mario Rositano

3.1 Rotating CROWG “Chairing” role:

- No volunteers to take the Chairing role for this meeting. Volunteers will be sought for the first meeting of 2025.
- **** PLEASE NOTE: Volunteers will have full support and direction from Mario and Alexis as to the format, content and running the meeting. They will also assist during the meeting to ensure things stay on track. Volunteering can be for one meeting only, if preferred. ****
- MR will reach out to members again via email and were encouraged to contact Mario if interested.

- DS agreed that it is a great opportunity for control room staff within the TNSP organisations and could even be added to staff performance plans as way to demonstrate that their skill is being refined.

3.2 CROWG on the AEMO website

- Created on the AEMO Website –
 - [Forums and Working Groups section > List of Industry Forums and Working Groups > CROWG page.](#)
 - Feedback Survey link - [CROWG Feedback Survey.](#)

3.3 CROWG Mailbox

- Email account for Control Room Operations Working Group (CROWG) communications - CROWG@aemo.com.au.

3.4 Face to Face Meetings – What’s next for the rest of the year?

- Members were asked for their input on continuing meeting face to face. The consensus was to keep the face-to-face meetings and provide the MS Teams option for the who cannot attend. It is envisioned that meetings will be held at DNSP and TNSP offices over the coming year.

4 Power System – Recent Events and What’s on the Horizon

4.1 Update from members

MR – Listed a few events that have occurred since the previous CROWG meeting in April 2024:

- Administered Price Cap for NSW – 08 May 2024
 - MR asked NSW members if any additional considerations were necessary due to the Administered Price Cap and mentioned that a concern in other regions was that it might cascade into those regions, as it has done previously.

4.2 Spring Observations

- MR discussed a question raised during the last CROWG about political pressure around MSL and ensuring rooftop solar is not being curtailed. Is that pressure still prevalent, or is it better understood as far as seeing potential roof top solar curtailed, especially with Spring/Summer?
 - MR advised that AEMO has published a [Fact sheet: Minimum system load \(MSL\)](#) on the AEMO website and an Information Sheet: [Victorian Minimum System Load \(MSL\): role of BESS](#)

FACT SHEET

Minimum system load (MSL)

Australia's electricity grids were originally designed to handle one-way distribution of power from large-scale generators to homes and businesses.

Today, unused electricity from millions of rooftop solar systems flows back into the power system.

This will provide a growing opportunity for consumers to participate in the energy market with their solar, batteries and electric vehicles, to improve electricity reliability and grid security.

However, in certain conditions high volumes of rooftop solar can reduce the need for electricity from grid-scale generators. When the power system demand or load events, which can pose risks to grid security.

What are the power system risks when demand is low?

AEMO operates the power system with high levels of rooftop solar most of the time. However, power systems in some electricity demand at early hours and essential services, which are provided by large power stations with spinning turbines, to maintain a safe and reliable electricity system during normal operating conditions, but also respond to issues that can impact grid security.

On sunny, mild temperature days, typically in summer and spring, large volumes of electricity from rooftop solar can reduce the need for electricity from grid-scale generators on the transmission network, driving access to essential services.

When low demand interrupts system load periods occur at the same time as a network issue, such as a transmission outage, AEMO as the power system operator may need to take actions to keep the grid secure, mitigating the risk of critical infrastructure damage and widespread or prolonged blackouts.

How does AEMO manage these risks?

AEMO administers participants through minimum system load market orders to the risks and actions being taken to manage solar management programs are activated as a last resort.

The process is similar to when AEMO communicates forecast low electricity reserve conditions, such as when businesses are using high electricity use.

While a process with industry and governments has been established to manage these low demand conditions, AEMO is continuing to look, research, and reform to enable more benefits from consumer energy resources. Rooftop solar, which will benefit all energy users.

Market notices are categorised over three tiers:

- MSL 1** **Advance notice**: AEMO provides advance notice of a possible minimum system event. The notice will generally be issued in advance, such as a day, to provide the market time to prepare and respond. However, it could be issued quite quickly if an unexpected condition arises.
- MSL 2** **Grid-scale actions needed**: This notice is issued if the risk remains. AEMO is taking available steps to maintain system security. These steps can include:
 - Rerouting planned transmission change.
 - Reducing grid-scale generation.
 - Increasing electricity demand by large users.
- MSL 3** **Solar management activated**: If actions taken by AEMO with industry have not sufficiently reduced the risk, AEMO would notify the relevant solar transmission network service provider to manage demand at the required threshold.

Where will this happen?

Only systems enabled at a grid level that are part of the program of the network service provider are shown. AEMO will provide more information on the program from reaching into the grid.

More info: www.aemo.com.au

AEMO is the independent energy market and system operator and system planner for the National Electricity Market (NEM) and Victorian Electricity Market (VEM). It is an not-for-profit company, with a membership of state and federal governments, DNSPs, and energy industry members.

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Victorian Minimum System Load (MSL): role of BESS

Background

This information has been prepared in response to industry request for an example exercise of the role of BESS in the Victorian Minimum System Load (MSL) framework and information on the associated compensation arrangements.

The power system is now operating at times for periods with very high levels of distributed PV (DPV) and low load, such that power system security issues can arise. To manage these potential security issues, AEMO has introduced the Minimum System Load (MSL) framework. The MSL framework¹ is summarised in Table 1. It aims to mirror the existing lack of reserve (LOR) framework and is intended for managing MSL conditions which are expected to impact on power system security. These MSL conditions may arise on rare occasions, for example during low demand periods when there is high levels of rooftop solar generation and network outages that affect the export capability of Victoria (VIC).

Table 1 VIC MSL framework

MSL	Definition	AEMO actions
MSL1	Two of the largest credible load contingencies from MSL2	Monitor the situation. Publish MSL market notice with MSL thresholds when forecast, which can be up to a week ahead.
MSL2	The largest single credible load contingency from MSL2	Take actions required to send satisfactory and return to and remain secure within 30 minutes following a credible load contingency.
MSL3	Level of regional demand where power security issues are forecast to occur	Additionally, instruct network service providers (NSPs) to maintain regional demand above the MSL3 threshold.

AEMO has identified a possible risk of scenarios where the VNI export limit violates in very low demand conditions. This document summarises the intended approach for directing battery energy storage systems (BESS) in South Australia (SA) and VIC to assist with maintaining power system security during MSL2 or MSL3 events for the spring and summer 24/25 period.

AEMO is currently forecasting a moderate possibility of a single MSL2 period occurring in the upcoming spring and summer period. Accounting for credible load contingencies, AEMO estimates that up to the full capability of all the BESS in VIC and SA (including MW and MWh) could be required to maintain system security during an MSL2 or MSL3 condition. BESS, with a maximum

5 Presentations, Addresses and Suggested Viewing Material

5.1 Bookends of our workforce – How do our most (near retirement) and least (graduates) experienced staff fit into our control rooms? – Mario – AEMO

- MR discussed the notion of how to get the best out of most experienced staff and where do our least experienced staff fit into our control rooms.

5.1.1 An approach to senior staff final years – Ed Selwood (Powerlink, GM Real Time Network Operations)

- ES presented on and discussed Shift Work – Retirement Transition and the procedures and processes implemented within Powerlink to address succession requirements. He then answered questions put forward by members. To view the slide pack, click the following link: [Shift Work - Retirement Transition](#)

5.1.2 AEMO Graduate Program – Maddison Demmler (AEMO, People & Culture)

- MD presented details about AEMO's Graduate Program and then passed to Vishy Datla, on the current Graduate Program, who discussed his time with AEMO and the benefits of having a Graduate Program for the organisation and Graduates. MD is happy for MR to pass on her details, should anyone wish to find out further information.

5.2 WA Power System | Warren Mumme – Western Power

- Ongoing and carried over to the next CROWG meeting.

5.3 ACRNA Conference in Melbourne | Russell Gordon – Energy Queensland

- A reminder about the discussion RG held about ACRNA - [Australian Control Room Network Association](#), in Salisbury Queensland, represent all control rooms, not just electricity and gas, but things like motorways are in their portfolio. They can introduce all of the supplier, provider and information people that have an impact on all things that are done in control rooms. The ACRNA is set up to support members with a resource gathering, sharing and development forum, and to provide a network of individuals and corporates who want to actively participate in pursuing control room best practice.

5.4 Recommended YouTube Videos – “Normalisation of Deviance”

- Members were encouraged to view “Normalisation of Deviance” [human factors] (~23 mins) ([Part 1](#)) and ([Part 2](#))
 - How does this apply in your control room?
 - Ignoring alarms
 - SLD's not up to date
 - Procedures not updated

6 Unit Daily Energy Constraints (DEC) – Constrained Capacity issue non-BDU

6.1 A discussion on incorrectly submitted DEC and its implications from 1 July 2025 as part of the ERI project – Ross Gillett – Operations Specialist and Oliver Derum, OSM Business Lead (AEMO)

- Oliver Derum discussed the implementation of the Enhancing Reserve Information rule change and AEMO's change to bid validation from 01 July 2025 and why the change is being made.
- Oliver noted that AEMO will contact individual unit operators who are currently submitting bids that would be rejected from 01 July 2025 to bring the impending change to their attention.
- Ross Gillett advised that implementation wise, AEMO envision this being in pre production around May 2025, maybe a little earlier if we could push it, but the bidding system changes are in May 2025. Production implementation is scheduled for July 2025, which is when the rule becomes effective.

7 What makes a Control Room Great?

7.1 Discussion on various aspects of a control room development

- This topic will become a standing item for future CROWG meetings. This is an introduction to this topic and how it came about. It will be formalised in the future with presentations and discussions.
- MR discussed the YouTube video he suggests members view
 - “Normalisation of Deviance” [human factors] (~23 mins) ([Part 1](#)) and ([Part 2](#)) Soft Skills
- MR requested that if members come across any clips that may be relevant for this topic, to please share them with the group, or add them to the meeting agenda. He then asked member if they have any points they would like to raise relating to leadership, soft skills or culture in control rooms.

- RW discussed respect, relationships and goodwill in control rooms, regardless of whom you are dealing with. Relationships and trust need to be established and maintained.
- Members further discussed perceptions, first impressions and the impacts of varying experience, age and knowledge, plus the importance of initial/ongoing training within control rooms.

8 Workplace Health, Safety and Environment in Power System Operations

8.1 Discussion on how WHSE applies to the Power System

- Ongoing and carried over to the next CROWG meeting.

9 Power System Operator Training (PSOT) | Daniel Lavis

9.1 Update of Power System Operator Training Framework (PSOT) - Dan Lavis (AEMO)

- Ongoing and carried over to the next CROWG meeting.

10 Shift Work | Mario Rositano

10.1 Update from members

10.2 Expectations of recent shift workers

10.3 Other business

- Ongoing and carried over to the next CROWG meeting.

11 Communications

11.1 Update – Darren Spoor (AEMO)

- DS provided background on the topic raised by the PSSWG – Power System Security Working Group six months ago.
- The CROWG recently developed voice communications requirements, which have now been included in Section 3.3.1 of the NEM Generator Registration Guide: [nem-generator-registration-guide.pdf \(aemo.com.au\)](#)

The PSSWG is seeking clarification on the following section:

- Primary operational contacts should be established via direct connections through a Public Switched Telephone Network (PSTN).
- Backup operational contacts should also be established via direct connections through a PSTN but can include mobile phones if the phone is located in an area of reliable coverage to more than one carrier cell tower and is on a different network to the primary number.

Should we clearly define what a PSTN is in the context of resilient communications?

Could this include NBN with battery backup for at least (say) three hours, in accordance with the communications equipment automatic access standard? (NER S5.2.6.2).

- JM and BM were tasked with coming up with a potential solution.

11.2 Revised sentence for 3.3.1 Section C: Operations Contact Details Requirements – Jordan Maxwell & Ben Madafiglio (Iberdrola)

- JM and BM presented a suggestion for a revised sentence for 3.3.1 Section C.
- Current sentence includes PSTN. This suggests underlying requirements of interoperability / compatibility, low latency, high reliability, robustness, blackout resistant. 3.3.1 Section C already requires direct connection, non-mobile, no menus, English, low distortion/noise, timing.
- The suggestion is to replace the term “PSTN” with “Interoperable and robust telecommunications network. Interoperable: calls between different providers. Robust: internet/power failure, high availability, redundant.
- DS provided a draft of the revised sentence:

3.3.1 Section C: Operational Contact Details Requirements The following points below summarise the requirements associated with the 24/7 control room and trading operational contacts:

- Primary operational contacts should be established via direct connections through **an interoperable and robust telecommunications network**.
- The use of mobiles as a primary contact may only be considered for Participants that are not covered by the requirements of the system restart communications protocol and where there is a dedicated 1300/1800 number which automatically connects to a prioritised list of recipients. If so, caller IDs must be correctly relayed such that correct call-back details are maintained. This requirement also ensures that caller authentication can be maintained. The call connectivity must also be robust.
- Backup operational contacts should also be established via direct connections through **an interoperable and robust telecommunications network** but can include mobile phones if the phone is located in an area of reliable coverage to more than one carrier cell tower and is on a different network to the primary number.
- Call menu options are not appropriate for operational communication and points of operational contact should be established via a direct number to the relevant operator or controller.
- Operators or controllers of facilities in the NEM must be fluent in the English language.
- The physical voice communications channel must have low distortion and noise, such that the communication is intelligible.
- Operators or controllers must comply with the agreed electrical and switching terminology used within the NEM.
- The objective is to answer any incoming call within 30 seconds. All incoming calls must be answered within no more than 5 minutes. The recipient of a call should also initiate a response in the network within 15 minutes for any system security related requests, instructions or directions, in accordance with Clause 4.2.6.
- Call system annunciators are commonly used to advise callers that the call is being recorded, as per Clause 4.11.4(c). When used, the length and complexity of these annunciator messages should be minimised. For example, the following annunciator message is deemed appropriate: "This call is being recorded"
- DS requested that the CROWG either endorse or propose other changes for the sentence, so that it could be put forward to the PSSWG.
- RW asked if this change will 'open it up to the wild west?'. Are we still going to maintain a common use of a tool within our industry, or are we eventually going to be completely different?
- JM discussed that true PSTN is currently near impossible and is seeking other suggestions from members on updates for the sentence.
- DS discussed that the document does not need to go back to Iberdrola for another update. Iberdrola will provide some background information to Mario to distribute to members. Members are encouraged to review and derive alternative updates, then present them to the group at the next CROWG.

- **ACTION:** MR – share background information from Iberdrola on revising 3.3.1 Section C, to the group.
- **ACTION:** ALL MEMBERS – consider reviewing the draft update of 3.3.1 Section C, along with the supporting information from Iberdrola, derive potential alternative updates and present to the group at the next CROWG.

11.3 Cyber Security: Spoof calls to control rooms – Jason Smith - AEMO, Energy Market Cyber Communication

- Jason Smith and Jim Anderson from the Energy Market Cyber team are based in Canberra at the Australian Cyber Security Centre. The presented a sensitive update on recent 'spoof' call incidents to the AEMO Control Room and discussed questions raised by members.
- MK requested Mario to share details about the incident and learnings with the WEM.

- **ACTION:** MR – provide members with a summary of events and learnings from the 'spoof' call incidents, which will be useful in control rooms.

12 Electricity Industry Terminology and Phraseology

12.1 System Restart Document Update

- Final version created and has been used as part of System Restart Training. Available for members on the CROWG page in the AEMO website.

12.2 Emergency and Time Critical Document Update

- Time Critical and Emergency Events Terminology and Phraseology document is available on the [CROWG web page](#) under CROWG Reference Papers.
- Members are asked to read and review the document as it needs amendments and additions. Comments are welcome.
- A subgroup will be formed and a meeting scheduled to finalise the document.
- JT discussed that this came about due to a lack of consistency or ambiguity about similarly sounding, but technically different words e.g. disconnection, isolated, offload. JT noted that some words seem to be missing from this document and asked the group if words should be added and then it made clear that they are not to be used and the person should clarify exactly what they mean.
- MK requested Mario to share details about the incident and learnings with the WEM.

- **ACTION:** MR – confirm volunteers for the subgroup to update and finalise the Time Critical and Emergency Events Terminology and Phraseology document. Ron Whalen, James Sherrin, James Tetlow, Ron Whalen and Leanne Maurice.
- **ACTION:** MR – schedule a meeting for the sub-group, for the document to be finalised and ready to present for endorsement at the Q1, 2025 CROWG meeting.

12.3 What's Next?

- Ongoing and carried over to the next CROWG meeting.

13 Control Room Technology and Ergonomics | Mario Rositano

13.1 What are the latest upgrades, ideas, proposals, projects, etc. What currently works and what issues have been experienced.

13.2 Headphones, phones, recordings, etc. What is best practice in the NEM?

- Ongoing and carried over to the next CROWG meeting.

14 Other Business

14.1 Feedback / Survey

14.2 Frequency of meetings. What should the CROWG aim for?

- Members were asked to consider if going forward there will be two CROWG meetings per year and if anyone would like a third meeting, they can initiate the chair for that meeting. Further discussions will be held at the next meeting.

14.3 VDS Update

- Ongoing and carried over to the next CROWG meeting.

15 Next Meeting

The next meeting will be scheduled in March/April 2025. MR will send out meeting invitations.

DATE	HOST	LOCATION
March / April 2025 - TBC	TBA	TBA

Meeting closed at 12.30pm (Market Time).