

# MINUTES

**MEETING:** National Electricity Market Operations Committee (NEMOC)

**DATE:** Friday, 10 December 2021

**TIME:** 10:00AM – 12.30PM (Sydney/Melbourne Time)

## ATTENDEES:

NAME	COMPANY
Ken Harper <i>(Chair)</i>	AEMO
Lenard Bayne <i>(Secretariat)</i>	AEMO
Michael Gatt	AEMO
Teresa Smit	AEMO
Tjaart van der Walt	AEMO
Wai-kin Wong	AGL/Clean Energy Council
Tim Lloyd	AusNet Services
Ben Skinner	Australian Energy Council
Christian Zuur	Clean Energy Council
Simon Emms	ElectraNet
Naresh David	Energy Australia/Australian Energy Council
Verity Watson	Energy Networks Australia
Glenn Springall	Energy Queensland/DNSP Rep for ENA
Gary Edwards	Powerlink QLD
Mike Paine	TasNetworks
Kasia Kulbacka	TransGrid

## GUESTS:

NAME	COMPANY
Callan Masters <i>(Item 4.1 &amp; 5.1)</i>	AEMO
Daniel Lavis <i>(Item 5.5)</i>	AEMO
Darren Spoor <i>(Item 5.2)</i>	AEMO
Fabian Spescha <i>(Item 3.1)</i>	AEMO
Luke Robinson <i>(Item 4.1)</i>	AEMO
Nilesh Modi <i>(Item 5.4)</i>	AEMO
Sujeewa Rajapakse <i>(Item 5.3)</i>	AEMO

## 1. Welcome

Ken Harper (Chair) welcomed members to the meeting.

## 2. Previous meeting minutes and actions

Previous meeting minutes were accepted with no changes made. NEMOC members approved 17 September 2021 meeting minutes to be published on [AEMO's website](#). Actions were updated accordingly, and amendments made.

### 3. Presentation

#### 3.1. System Restart Ancillary Service (SRAS) 2021 Outcomes and Outlook

Fabian Spescha joined to provide an update on the SRAS 2021 Outcomes and Outlook. The presentation focused on is outlined below.

- SRAS procurement
- Future of SRAS and restart
- Considerations

It was noted that the System Restart Standard (SRS) was updated with an effective date of 28 January 2021. An outline of the SRS is outline below. In addition, all state jurisdictions have met the new SRS.

Electrical Sub- Network	Restoration Supply Level (MW)	Restoration Time (hours)	Required Aggregate Reliability
Queensland *	1650	4.0	90%
New South Wales **	1500	2.0	90%
Victoria	1100	3.0	90%
South Australia	330	2.5	90%
Tasmania	300	2.5	95%

\* For Queensland electrical sub-network AEMO shall procure SRAS north of Bundaberg, sufficient to also independently restart, without drawing power from the power system, at least 825 MW of generation capacity north of Bundaberg within four hours of a major supply disruption with an aggregate reliability of at least 80 per cent.

\*\* For New South Wales electrical sub-network AEMO shall procure SRAS north of Sydney, sufficient to also independently restart, without drawing power from the power system, at least 500 MW of generation capacity north of Sydney within four hours of a major supply disruption with an aggregate reliability of at least 75 per cent.

The current SRAS within the NEM are outlined below.

	QLD	NSW	VIC	SA	TAS
Services	3	2	2	2	2
Type	Steam	Hydro & Gas	Hydro & Gas	Gas	Hydro

It was noted that a frequent review of the SRAS framework should be reviewed on an annual basis with a focus on SRS quantitative requirements (robust and fit for purpose) and a review of the tender process/contracts to provide sufficient incentive for new entrants. In addition, for new SRAS entrants and technologies, removing barriers for new entrants would provide increase competitiveness.

## 4. Discussion

### 4.1. NEM Reviewable Incidents

#### 4.1.1. NEM Reviewable Incidents FY 20-21

Callan Masters provided an overview of the NEM Reviewable Incidents for the FY 20-21 period and in addition, provided commentary on the overall incident review process and criteria.

There was a total of 29 reviewable incidents within this period and in addition a short-form reporting for minor events was introduced. Callan Masters explained that short form incident reports are created for simple incidents where there is a clear cause and recommendation. The tabulated nature of these reports speeds up the review process while still meeting all of AEMO's obligations. These new types of reports will ensure AEMO can efficiently publish fit for purpose incident reports.

Reports have been published on AEMO's website for all but 4 of these events with 2 being covered as major incident reports. There are 2 incidents which occurred in May and June that are currently in the review process.

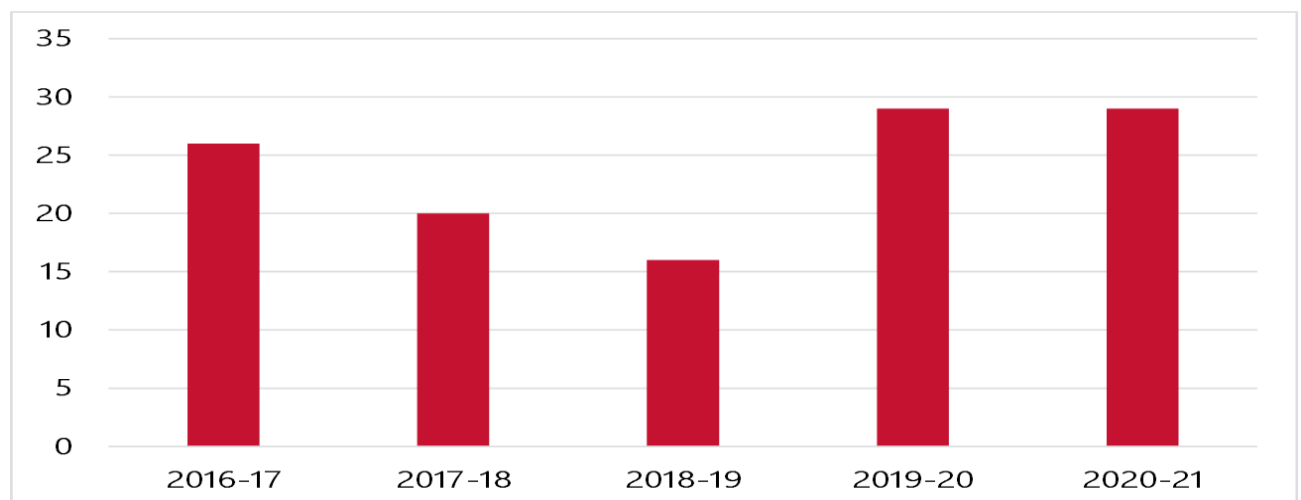
The below table outlines the 4 major incidents within this period.

Incident date	Preliminary report	Final report	Event	Likely Cause	System Impact
24/01/2021	Published 16/02/2021	Published 27/09/2021	NEM Wide SCADA failure	Software issue impacting SCADA refresh rate leading to SCADA failure	AEMO NEM wide scade failure, no load or generation loss and system remained secure
12/03/2021	Published 19/03/2021	21/10/2021 (target)	Torrens island 275 kV CT failure	Single phase CT failure (internal failure)	loss of 111 MW of generation and system constraints reducing other generation availability
14/03/2021	N/A	29/10/2021 (target)	Instruction to maintain SA Operational Demand above 400 MW	Underforecasting of demand and Solar generation output	Around 71 MW of Distributed Photo-Voltaics (DPV) curtailed.
25/05/2021	Published 02/06/2021	Published 08/10/2021	QLD generation loss and load shedding	Fire at Callide C power station followed by un-cleared generator fault	Loss of 3045 MW of generation and operation of UFLS and 2300 MW of load in QLD

A large number of events were a result of protection issues which have caused system incidents.

It was noted that AEMO have previously discussed this at the Power System Security Working Group (PSSWG) and subsequently have put in place a Risk of Trip protocol. AEMO will seek guidance from the NEMOC and raise with relevant NEMOC sub working groups as required.

The graph below indicated the number of reviewable incidents during the period between 2016 and 2021 is outline below.



#### 4.1.2. NEM Reviewable Incidents as of 17 November 2021

Callan Masters provided a summary of the Reviewable Incident Report as per NER 4.8.15. A total of 9 reviewable incidents are currently being drafted with a further 9 reports published on [AEMO's website](#).

### 5. Working Group Updates

#### 5.1. NEM Emergency Communications Committee (NEMEC)

Callan Masters provided an overview of the first NEMEC meeting which was held on 29 October 2021. The group finalised their ToR, membership and agreed to meet every 3 months.

Discussion and agreements from this meeting are described below.

- The group discussed the work already completed by the PSSWG (consideration of interconnection of OTN networks) and the work completed by Mobile communications (details of high frequency communications solution)
- It was identified that additional funding for a solution may be available. This will be explored further once the NEMEC identifies the preferred solution.
- The group discussed the performance and possible issues in using a high frequency communications solution.
- The group reviewed the NEM Emergency Communications reliability requirements and agreed that any solution must meet these requirements.
- It was agreed that any solution would need to be tested under worst case conditions (such as testing the solution by communication between Hobart and Brisbane)

#### 5.2. Power System Security Working Group (PSSWG)

Darren Spoor provided an overview of the PSSWG meeting which was held on 5 October 2021.

The PSSWG were provided with a detailed summary of the events surrounding the QLD underfrequency load shedding event on the 25 May 2021. Key observations focussed on the loss of DC supplies at Callide and the subsequent impact on the transmission system.

In addition, a detailed review of the recent non-credible contingencies and associated causes.

The PSSWG continued the review of the reclassification framework with a specific focus on generator reclassification. Feedback from the Generator Council was that the published procedure SO\_OP\_3715 was fit for purpose, however the PSSWG were requested to assist in educating market participants on the obligations under Clause 4.8.1.

The PSSWG discussed issues associated with cloud cover affecting distributed rooftop PV and noted that the WEM had recently experienced a 750MW ramp (25% of demand) in rooftop PV within 30min due to cloud cover. It was agreed that the reclassification framework could potentially assist with this risk if it were not possible to capture the demand forecasts. This will be discussed further at the next meeting.

The PSSWG discussed the Severe Space Weather warning issued by the Bureau of Meteorology (BoM) on the 29 October. The BoM warning was subsequently cancelled, however provided an opportunity to confirm the process for managing this risk and communication channels. Discussions also focussed on

the smaller event which was detected at around 1920 hrs on 4 November. The CIG current waveforms were shared with the BoM to assist in refining models.

The PSSWG reviewed the proposed operational thresholds for Local Oscillatory Stability and System Security which was presented by members of the Power System Modelling Reference Group (PSMRG). These thresholds were to be considered by the Network Service Providers (NSPs) prior to a follow-up meeting scheduled for 9 December 2021.

The next PSSWG meeting will be held on 10 March 2022.

### 5.3. Operations Planning Working Group (OPWG)

Sujeewa Rajapakse provided an overview of the OPWG meeting which was held on 23 November 2021.

It was noted that AEMO have completed building a multi-mass model to model Under-frequency load shedding (UFLS) in the NEM (one lumped mass per region). It includes modelling of battery storages, rooftop PV, primary frequency response and Frequency Control Ancillary Services (FCAS).

It was noted that NSPs were requested to submit half hourly UFLS dataset for the period 2018-2020 in early July 2020 with the intention to use these inputs to the model scripts and the model. NEM intact and separation studies were completed and analysed with the final report being slightly delayed due to other impeding priorities. AEMO anticipate completing this report by the end of January 2022.

AEMO observed several wind farms had tripped at 51 Hz during a 2020 over-frequency event. This highlighted that either some Implementation of over-frequency generator shedding (OFGS) settings had not been implemented correctly or these plants were not complying to their OFGS settings and/or generator performance standards. Two wind farms have corrected their OFGS settings, one wind farm is yet to rectify their settings.

The OFGS settings developed by TasNetworks have worked well with no additional work required.

AEMO provided an overview of the summer readiness program of work for 2021/22 and outlined the actions planned for summer readiness. These included:

- Surveys of TNSPs and major Generators have been completed
- Stakeholder engagement following AEMO overall assessment is progressing.
- AEMO is of the view that voltage operation can be managed in all NEM Regions during the summer period, noting the new reactive plant getting connected to the power system in SA and VIC.

The nominal start date for the Summer Network Outage Guidelines was going to be Monday 15<sup>th</sup> of November however, due to prevailing mild weather, the commencement date was moved to 1 December 2021. It was noted that TNSPs will plan network outages consistent with the guidelines and some TNSPs were not intending to conduct planned major network outages during the summer period.

The OPWG have been discussing improvements to the methodology used in deriving the draft statistics of planned network outages. AEMO presented a set of improvements to the methodology in the November OPWG meeting. The OPWG members endorsed the proposed improvements and requested AEMO to prepare a new set of statistics for the same historical period for discussion at their next meeting.

It was noted that the three-yearly review of the Congestion Information Resource (CIR) has been completed with two submissions received. The final report has been published on AEMO's website.

In addition, the OPWG discussed the power system security issues caused by large increases of semi-scheduled generation in dispatch intervals immediately following dispatch intervals with semi-scheduled cap applied. Several ideas to manage this was presented with discussions to further continue at their next meeting.

The next OPWG meeting will be held on 1 March 2022.

#### 5.4. Power System Modelling Reference Group (PSMRG)

Nilesh Modi provided an overview of the PSMRG meeting which was held on 19 November 2021.

It was noted that discussions relating to observed 17 Hz oscillations in the West Murray area, with a large gap in terms of necessary monitoring devices in that area has been identified. In addition, it was noted that the PSMRG would like to highlight to the NEMOC that with growing penetration of inverter-based resources, it is important to have appropriate high-resolution monitoring in place for monitoring the performance of the system as well as identifying root-cause of observed phenomenon.

PSMRG members understood the need to transition to PSCAD V5 and therefore eager to see the progress of this transition on a more regular basis. PSMRG NSP members requested if AEMO could provide necessary documentation that would help them to request appropriate and compatible models from the proponents.

It was noted that a working group between PSMRG members and Joint Planning Committee (JPC) members will be formed to progress new system strength rule change related work.

In addition, the Power System Security Working Group (PSSWG) and PSMRG members met to discuss the 0.5% oscillations criteria, however, was not approved. It was noted that NEMOC members did not recommend the use of 0.5% peak-to-peak oscillations criteria for Operations. However, 0.1% peak-to-peak oscillations criteria for Planning was agreed by the PSSWG and PSMRG, with NEMOC members approving this approach.

The next PSMRG meeting will be held in early 2022.

#### 5.5. Operations Training Working Group (OTWG)

Daniel Lavis provided an overview of the OTWG meeting which was held on 30 November 2021.

A presentation of progress to date on the National Training Framework (NTF) project was presented to NEMOC members. It was noted that a series of consultations were undertaken with Power System Operators to understand training needs and requirements. AEMO have established a NTF Steering Committee comprising representation from Network Service Providers (NSPs), Generators (including Renewables), Clean Energy Council and Energy Networks Australia. Follow up interviews and validation through the dissemination of the initial modelling contained in the Draft Report, will occur to further refine and improve the final report. AEMO will seek guidance from the Steering Committee to achieve the necessary outcomes and provide direction for further development.

The next steps will be reviewing the results of the initial consultation, along with a draft overview of a proposed framework, and will be presented to the NTF Steering Committee on 14 December 2021. In addition, further interviews will be conducted to validate and refine the report which will occur through

December 2021 and January 2022, along with input and guidance from the Steering Committee. AEMO expect to publish a final report by the end of February 2022.

The next OTWG meeting will be held in early 2022.

## **6. General Business**

6.1. SA and Synchronous Condensers Operations *(No Paper)*

6.2. Propose date change for March 2022 NEMOC/EJPC Workshop *(No Paper)*

NEMOC members endorsed this date change.

Next NEMOC Meeting & Workshop	
NEMOC Meeting #27	18 March 2022
NEMOC & EJPC Workshop #6	25 March 2022