Shell ENERGY

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Submitted electronically: energy.forecasting@aemo.com.au

**RE: NEM Reliability Forecasting Guidelines and Methodology**

## About Shell Energy in Australia

Shell Energy is Shell's renewables and energy solutions business in Australia. Shell Energy delivers business energy solutions and innovation across a portfolio of electricity, gas, environmental products and energy productivity for commercial and industrial customers. Our residential energy retailing business Powershop, acquired in 2022, serves more than 185,000 households and small business customers in Australia. The company's generation assets include 662 megawatts of gas-fired peaking power stations in Western Australia and Queensland, supporting the transition to renewables, and the 120 megawatt Gangarri solar energy development in Queensland. Further information about Shell Energy and our operations can be found on our website here.

## General Comments

Shell Energy Australia (Shell Energy) is supportive of a number of the changes outlined by AEMO in the draft NEM Reliability Forecasting Guidelines and Methodology report. This submission sets out areas where Shell Energy does not support or seeks further clarity or amendments with regards to AEMO's recommendations.

## Consultation Timeline

We note AEMO's assessment that this consultation must be completed by 30 April 2023. Notwithstanding, we consider that the time allowed for consultation on the substantive changes proposed reflects only the minimum required by the Rules. We consider a longer timetable should be considered to allow the widest range of stakeholders to be able to provide an appropriately considered response.

Shell Energy notes AEMO's assessment and conclusions regarding the work still to be undertaken to make changes to guidelines, methodologies, data collection templates. We also note that AEMO has been unable to prepare analysis of the impact of the proposed changes to the reliability forecasting processes and their outcomes. This supports our comments above regarding the short consultation window and we recommend further engagement when work has been undertaken to assess the impact of the proposed changes.

## MTPASA and 30% POE

Shell Energy supports the proposed changes to new generating unit commitment criteria and the intent to adopt Shell Energy's suggested discretionary and non-discretionary outage classification criteria to be implemented under this consultation process. These changes if implemented correctly will act to move reliability forecasting back towards a more balanced outcome. Correcting what we view as a conservative bias in forecasting maximum peak demand outcomes in some regions will further improve the balance of AEMO's various reliability forecasting processes.

With the increasing penetration of variable renewable energy and the forecast reduction in schedulable generation output we believe it is time for AEMO to consider if routine modelling of the 30% POE demand is warranted. Based on information from the weekly MTPASA runs, greater than 95% of forecast unserved energy (USE) is solely associated with the 10% POE demand forecasts. We believe this is as a direct result of the

statistically high probability weighting of 30.4% applied to the 10% POE modelling runs. Incorporating lower demand 30% POE demand outcome modelling in the various reliability assessments where forecast USE values will be lower will allow a more accurate allocation of probability weighting to the 10% POE modelling runs. This will more accurately represent the potential for USE in the future. It will reduce the costs to consumers of potentially unnecessary market intervention based on statistically high probability weightings for demand outcomes that only have a probability of occurring once in any ten year period.

### Energy Adequacy Assessment Projection (EAAP) scenarios

We note AEMO's decision to remove the proposal to "include any other scenario that it reasonably considers will have an impact on the EAAP" without prior consultation with stakeholders. However, we are concerned that in its place AEMO have indicated an intention to undertake sensitivity analysis on the three core scenarios without prior stakeholder consultation. We support sensitivity analysis being undertaken based on prior consultation with stakeholders regarding the sensitivities to be modelled and their input assumptions. Such stakeholder consultation could be facilitated through AEMO's Forecasting Reference Group (FRG).

Shell Energy notes AEMO's proposal to clarify the low fuel scenario for thermal generation as 90% POE input energy availability assumption. We consider that further clarity is required to define if this should be on an annual or shorter time period, such as a monthly basis. Whilst short term fuel events can occur, historically they have not been enduring and in the case of coal fired generators it is common for supply contracts to contain make-up provisions for shortfalls within a six or twelve month period. There is also the question of interaction of lower deliveries over a short timeframe with coal supply stockpiles and the ability to source additional coal from the spot market or via contractual flex provisions within a reasonably short time period. With regards to contracted input energy, it is not just currently contracted values but also anticipated contracts to cover budgeted energy forecasts that must be included. The data collection process should seek to understand all these variables, failing to do so will result in incorrect outcomes which may negatively impact participants and consumers.

With regard to gas and liquid fuel generating units, we recommend thatthe model should only reflect generation constraints where input fuel is genuinely unavailable. Whilst the information provision template contains provision for on-site fuel storage, it should also contain provision for off-site fuel storage which could include both contractual and self-provided line pack or liquid fuel storage. Some generating units have private higher pressure fuel delivery pipelines connected to the primary gas transmission system which effectively act as an off-site fuel storage facility.

We recommend that following completion of the consultation, AEMO conduct data provision workshops to ensure a consistent approach by all participants in the provision of the required data.

Shell Energy maintains its original concerns and comments regarding the proposed simultaneous low thermal fuel and high rainfall but low output from hydro generating units scenario. Calendar Year 2022 was notable for its high rainfall outcomes across most mainland NEM regions. Overall, hydro generation output in the key regions of New South Wales and Victoria exceeded the long term average by approx. 20%. This outcome does not support the proposed high rainfall, low hydro output scenario. As indicated in our previous submission, the low thermal fuel scenario is more appropriately matched with normal hydro output rather than low hydro output.

### EAAP and ESOO model and publication alignment

Shell Energy seeks further clarity regarding the following statement in the draft report:

> *"EAAP methodology and model to predominantly align with the ESOO, where GELF parameters will be added to the ESOO model, instead of the most recent MT PASA run model."*

We are concerned regarding the proposed change to include GELF parameters in the ESOO model and were unable to find in the revised ESOO and Reliability Forecast Methodology Document how this change would be incorporated in the ESOO modelling process. We consider that only demonstrated relevant and appropriate EAAP parameters advised by participants should be included across the entire ESOO timeframe and that when they are included they should be clearly documented in the ESOO and EAAP reports. We also seek clarity regarding how AEMO would communicate outcomes associated with other EAAP scenarios and sensitivities in the combined ESOO/EAAP document.

We note that as AEMO intends to collect GELF data along with ESOO data, it may be appropriate that AEMO consider extending the period allowed for the change in GELF data provision in 2023 to mid- or late-May.

### Application of GELF and ISP operational parameters to reliability forecasts

We note AEMO's agreement with Shell Energy that EAAP modelling should assume units (particularly coal units) are operating at or above minimum stable levels when submitted as available. We also appreciate the clarification that AEMO's inclusion of operational parameters in the various reliability forecasts will not force generators out of service based on not achieving minimum stable load. We recommend that AEMO in the ESOO and EAAP reports provide transparency when the model has removed a unit reported as available from the modelling run.

### Hydro modelling assumptions

Shell Energy notes AEMO's agreement with our argument that hydro generators have greater flexibility than the current modelling methodology incorporates. For clarity, it was never Shell Energy's suggestion that the model be allowed to deplete all storages in a forecast year but that the model should be allowed to incorporate an appropriate level of flex in storage levels *between* years reflective of that observed in the market. We suggest that a level of flex in line with historical observations should be allowed in storage levels in any year which would result in a beneficial reduction in forecast USE. We consider allowing for a modest level of flex in storage levels would provide a more accurate assessment of forecast USE than the current fixed storage level methodology.

### MT PASA Loss of Load Probability (LOLP) modelling

We do not support AEMO's conclusion in this area. Adding additional constraints to a methodology already based on worst case outcomes occurring on each and every day in the MTPASA model overstates the probability of forecast supply interruptions to consumers. Whilst we note AEMO's comment that the LOLP modelling is not formally part of the reliability assessment framework, AEMO has relied on the LOLP modelling outcomes in various reports and in arguing for changes to both the form and level of the reliability standard. AEMO's proposed change in this area would artificially inflate the level of forecast LOLP for consumers and promote the potential for ill-advised market intervention based on flawed analysis.

### Generator and integrated resource system outage parameters

Shell energy supports the changes proposed by AEMO to its original proposals. In addition, when considering an extension to a long duration outage which may be associated with major plant upgrades or maintenance work, we recommend that AEMO also consider the time at which the planned outage extension is advised to the market. We consider that provision of advice to extend the outage duration towards the beginning of the outage window, should new information arise, is of less concern than provision of advice to extend the outage towards the end of the outage which may not provide sufficient time for beneficial changes by other market participants.

### Transmission outages

Shell Energy notes AEMO's assessment but does not agree with AEMO's conclusion in this area. AEMO argue that the impact of including simplified transmission outages parameters in the reliability forecasting modelling was immaterial. Based on the values published by AEMO for full unplanned outages and reclassification of double circuit outages as a single credible contingency, we disagree with the assessment. The revised line limit associated with the full unplanned outage is significantly lower than the for the reclassification outage and, in our view, using the lower value for all outages would have a greater impact than that indicated.

We note AEMO's concerns that to model the outages correctly would require a significant model change, therefore we propose the following amendment to AEMO's methodology. This is based on the relevant change in transmission line limit outcomes for both a full unplanned outage or reclassification of multiple lines to a single credible contingency. Using the parameters supplied by AEMO at the June 2022 FRG meeting for the NSW to Qld flowpath as an example:

Full outage rate = 0.2%

Revised line limit = 350 MW approx.

Reclassification Outage = 1.2%

Revised line limit = 850 MW.

Combine outage rate = 1.4%

Revised line limit = 779 MW (0.2/1.4x350 + 1.2/1.4X850)

This outcome more reasonably represents the impact of the combination of full unplanned and reclassification outage on the network flowpath than the current use of the lower value for all outages. A similar calculation should be applied to the Vic to SA flowpath.

### Large loads commitment criteria implementations

Shell Energy appreciates the changes to the commitment criteria for large loads in the draft report. However, to more fully align the criteria for large loads with those for generation and transmission/distribution projects we recommend the following amendments (changes in Red):

- The project has obtained the required environmental and development approvals.
- The project has obtained approvals from and has signed an agreed connection agreement with the network service provider to connect to their system.
- Where applicable, the project has, (or is working towards), achieved an agreed connection performance standard.
- The project proponent has publicly announced that it has taken a positive final investment decision and has demonstrated that orders have been placed for the required plant and services and/or the project has commenced construction.

These criteria take into account the proposed change for large loads to have an agreed connection performance standard similar to that for generation. Further, when AEMO includes a new large load in its demand forecast, AEMO should set out the size of the load and confirm how it has met the criteria.

### Discussion of material issues on Reliability Gap Calculation

Shell Energy notes AEMO's concerns that:

*"The limited sampling of 12 reference years resulted in bias amongst forecast USE. The limited sampling of 12 reference years resulted in bias amongst forecast USE. For example, maximum demand forecasts for South Australia in 2023-24 indicated the possibility of maximum demand events between December and March, whereas the reliability risks identified from the limited sample of 12 reference years predominantly arose in January. AEMO considers it prudent that a greater gap period, to cover forecast maximum demand projections would have been more appropriate."*

Whilst we agree that maximum demand could occur in South Australia, in this case, in the months of December through to February, simply having maximum demands occur in any month does not necessarily result in potential USE due to the support available across interconnectors. We note that in the last 12 years combined Victoria plus South Australia peak demand has occurred in January in 8 of those years. The data from the modelling should set the periods where USE may occur and not subjective concerns as indicated above. Shell Energy would only support an expansion of the gap period where this was based on robust analysis supported by data.

AEMO have proposed to calculate the likely trading intervals and the reliability gap period such that the likely trading intervals of the reliability gap period contain a minimum of 80% of USE forecast over the financial year. We note that based on information set out in the latest weekly MTPASA update, that 99% of USE forecast in the March 2023 to February 2024 period in South Australia occurs in January 2024. For NSW in the period April 2024 to March 2025, the reliability gap period would extend from June 2024 to February 2025 to achieve the 80% capture threshold. In Victoria for the period April 2023 to March 2024, the period November 2023 to March 2024 would need to be declared gap months. The variability in outcomes would suggest that the proposed trigger may not provide the consistency in outcomes sought by AEMO or one acceptable to participants and consumers who bear the economic burden of any declared gap period.

We recommend the following alternatives

- Use the 80% trigger threshold as proposed but amended to exclude any months where the forecast USE in that month is less than 10% of the yearly total.
- Include only those months where the calculated USE value exceeds 0.024% and only those trading intervals in that month where forecast of USE exceeds 10% of the total trading intervals in the month.

This would ensure that a reliability gap period only includes those periods were it is genuinely warranted reducing costs to consumers and regulatory burden on participants.

AEMO has also proposed a change to adopt a flexible methodology, whereby AEMO must have regards to four specified criteria when identifying the likely trading intervals and reliability gap period. We do not believe these proposed changes are required and are best covered by our suggested alternatives indicated above. AEMO's proposed flexible criteria would allow an outcome where the reliability gap whilst forecast to be only in one month would be extended to a whole quarter, or longer, because in AEMO's view this better aligns with standard contract periods. Shell Energy does not believe AEMO is well placed to determine how contract availability should influence the duration of a reliability gap period. AEMO should only declare the minimum gap period required to meet the relevant reliability threshold and leave participants to determine their optimum contracting strategy to meet their RRO obligations.

Shell Energy does support AEMO's proposal to calculate the reliability gap in megawatts as the capacity required to reduce expected USE to the relevant reliability standard, assuming the capacity is available in all periods of the year (rather than only in a narrower reliability gap period). Shell Energy and its predecessor ERM Power has recommended this change to AEMO via submissions on a number of occasions.

**PASA Availability recall period and implementation**

We note AEMO's assessment in this area. We support AEMO's view that, *"72 hour recall is a valid recall period for longer-term planning including the EAAP and ESOO. As such, AEMO proposes to clarify this in the recall time requirements of the definition of 'scheduled capacity' as submitted to Generation Information, which is the source of capacity information for ESOO and EAAP."* We recommend that this change also be extended through to the MTPASA reliability assessment as soon as it is practical to do so.

For further detail or questions regarding this submission please contact Peter Wormald (peter.wormald@shellenergy.com.au).

Yours sincerely,

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