

Hi Nicola and Team

Please find below Shell Energy Australia's (Shell Energy) feedback on the Forced Outage Rate presentation provided to the FRG meeting on 30 June 2021.

Firstly, given the lack of background detail provided regarding the presentation and the lack of adequate Q&A time provided for the presentation we are disappointed with AEMO decision to deny our request for further engagement with FRG members at the additional out of normal session meeting to be held on the 14 July 2021.

Shell Energy is also disappointed that a large number of questions regarding AEMO's presentation remained unanswered at the FRG meeting and note that no attempt has been made by AEMO to rectify this between the meeting and when submission on the presentation are due. We believe AEMO should have sought to provide detailed responses to the unanswered questions and circulated this to the FRG members to allow a fully considered response to AEMO's presentation.

General Comments

Shell Energy remains concerned regarding the lack of background detail around the presentation. Details provided for these critical input assumptions were far below that which would be considered adequate.

Shell Energy remains concerned regarding the inadequate level of Q&A allocated to the presentation on the 30 June.

Slide 5

Indicates that the HILP outage includes all outages of greater than 5 months duration. Does this include or exclude planned outages? How were extension to planned outages dealt with. How were reserve outages, (defined as outages for economic as opposed to availability reasons) which are associated with a planned or unplanned outage treated.

Shell energy considers that forced outage rates applied for HILP outages should be calculated only on unplanned or forced outages and should not include planned outages, planned outage extensions or reserve outage periods.

Shell Energy requests further details regarding what HILP outage rates will be applied for future years, in particular following years where generator retirements are currently indicated.

It would be helpful in AEMO could supply a full list of all HILP outages included in their calculation noting that public historical data already exists and it would be more efficient for AEMO to supply data regarding which outages AEMO believes are HILP outages.

In considering the calculation of HILP events, AEMO has calculated data base on only the last 11 years of historical data. Current generating units would have data extending beyond this 11 year period, why has AEMO limited the data to only 11 historical years.

Slide 6

Indicates the forced outage rates that AEMO has compiled from a combination of participant's and AEMO's consultant's forecasts of future forced outage rates. Shell Energy requests that forecast of future forced outage rates be supplied based on separation of participant's and AEMO's consultant's forecasts.

Slide 10

It is unclear from the presentation if the data includes only periods of unplanned or forced outages or transfer limit reduction associated with the reclassification of the potential loss of double circuit transmission lines as a credible contingency. It is also unclear if the data excludes all double circuit transmission line outages which were not reclassified as a credible contingency event prior to the occurrence of an unplanned or forced outage. This would also include the period associated with the restoration of these lines.

It is also unclear if the data contains the simultaneous loss of single circuit transmission lines. Shell Energy requests that AEMO supply full details of all network outages on which the Forced Outage Rates for transmission elements was calculated to the FRG.

Shell Energy notes the inclusion of the additional transmission flow paths in this year's modelling

We support the inclusion of transmission lines between Liddell – Muswellbrook – Tamworth – Armidale – Dumaresq – Bulli Creek provided this is based solely on the selection criteria set out above.

We support the inclusion of the Murraylink circuit based solely on the selection criteria set out above.

With regards to South Morang – Dederang – Murray – Upper and Lower Tumut transmission lines, we question their inclusion based on the South Morang – Dederang – Murray flow path being an intra-regional and not an interconnector flow path supported by the following reasoning.

At times of high Vic demand, output from the remote intra-regional Murray and AGL Southern Hydro generators block any southward flow across the NSW to Vic interconnector under system normal conditions. At times of network outage, or network reclassification, the NSW to Vic interconnector is usually subject to significant counter price flow outcomes. As such, we believe the South Morang – Dederang – Murray flow path fails to meet the condition set out in Slide 4 that this network “materially contributes to inter-regional power transfer”. In Shell Energy's view it is clear that the flows across the South Morang – Dederang – Murray flow path, particularly at times of high Victorian demand, is dominated by output from remote intra-regional generation at Murray and AGL Southern Hydro and as such any involuntary load shedding associated with the loss of one of these transmission lines would not constitute unserved energy under the Rules due to the lack of intra-regional generation or inter-regional network capacity. Sufficient intra-regional generation would remain available to satisfy the Victorian load but was only prevented from supplying the load due to the lack of intra-regional, and not inter-regional transmission capacity.

We consider that inclusion of the Murray to Upper and Lower Tumut's flow path is warranted as this forms part of the direct interconnector flow path between Victoria and NSW. We note however, that at time of high Victorian demand, transfer across this flow path would be negligible due to high output from remote intra-regional generators from Murray and AGL Southern Hydro generating units and would therefore not contribute to meaningful level of unserved energy in Victoria.

Similar to the South Morang – Dederang – Murray flow path, we query the inclusion of transmission lines between Moorabool – Mortlake or Tarrone – Heywood. In the future flows across this network towards the Melbourne load centres in Victoria may be subject to congestion due to high semi-schedule and scheduled generation output in southwest Victoria. Flows towards South Australia may not be restricted due to a failure in this network but by capacity limitations associated with stable operation of the Heywood to Southeast or Heywood to APD Smelter. In Shell Energy's view, in modelling the impact of outages of this network flow path, additional assessment above that currently proposed of the cause of actual reduction in generating unit output must form part of

AEMO's analysis. Where AEMO calculates the potential for unserved energy due to a network outage in the flow path it must be able to demonstrate if this resulted in a limit of flows between Heywood in Vic and the South East Switchyard in South Australia or only a reduction in output from remote intra-regional generating units in southwest Victoria. If merely a reduction on output from remote intra-regional generators, we question if this would constitute unserved energy under the Rules.

Similarly, inclusion of the South East to Tailem Bend flow path in South Australia must clearly demonstrate where any involuntary load shedding is associated with congestion on the inter-regional flow path between Heywood and the South East switchyard and not simply a reduction in output from remote intra-regional generation connected at the South East switchyard or the 132 kV network between South East and Tailem Bend.

Slide 11

Shell Energy queries the 21.3 hours average mean time to repair for all transmission network elements subject to inclusion in the transmission network forced outage modelling. We request AEMO provide additional information to justify such a large value.

As indicated above, Shell Energy requests that AEMO provide a detailed list of all outages included in the calculation of the forced outage rates and time to repair for all outages which AEMO have included in their calculation to the FRG to allow independent and thorough discussion.

Slide 12

In preparing the traces developed for the relationship between bushfire weather Forest Fire Danger Index [FFDI] and unplanned outages or reclassification on the South Morang – Dederang – Murray – Upper and Lower Tumut transmission lines, what analysis has been undertaken to determine how this relationship may vary with improved fire risk mitigation practices planned for implementation by the Victorian Government to prevent a re-occurrence of the "wild fire" conditions that occurred in the 2019/20 summer period.

Can AEMO provide greater details regarding the assessment process for calculating the future forecasts for high FFDI conditions.

In using the history of bushfire reclassifications, has AEMO separated forced vs planned reclassification events. Not all bushfire reclassifications have been forced, many have been planned and co-ordinated to allow back burning and other fuel management processes during periods of lower regional demand. It should be only periods of forced outage which are included.

Shell Energy looks forward to AEMO's response to these concerns.

Kind regards

Ron Logan

Senior Markets Adviser



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