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17 May 2024

### **Reliability Panel Review of the Reliability Standard and Administered Price Cap: Draft report**

The Australian Energy Council (AEC) welcomes the opportunity to make a submission in response to the Reliability Panel Review of the Reliability Standard and Administered Price Cap: Draft report (Draft).

The AEC is the peak industry body for electricity and downstream natural gas businesses operating in the competitive wholesale and retail energy markets. AEC members generate and sell energy to over 10 million homes and businesses and are major investors in renewable energy generation. The AEC supports reaching net-zero by 2050 as well as a 55 per cent emissions reduction target by 2035 and is committed to delivering the energy transition for the benefit of consumers.

The AEC acknowledges the Reliability Panel's (the Panel) comprehensive analysis and the incorporation of some stakeholder suggestions. As we have stated previously the AEC considers this is a *modelling* challenge rather than a necessary condition to change the form of reliability standard which relates to the economic impact on customers of accumulated rotational load-shedding.<sup>1</sup> The Panel's analysis has proven this to be the case and the Draft appears to represent practical evidence based decision making to best satisfy the NEO and most importantly the best interests of electricity consumers.

#### **Form of the reliability standard**

The key driver for the Review was that the changing reliability risk in a high-VRE system may lead to very extreme reliability shortfalls and the current form of the standard may not adequately address such risk. As noted in the Draft, there is currently no identifiable value in moving to a different form of the reliability standard. Rather, as suggested by us and other stakeholders, the modelling that is undertaken to establish the trade-off between reliability and cost for consumers needs to be enhanced as the NEM changes transitions away from dispatchable thermal plant to VRE, batteries, storage and peaking GPG.

Based in the Panel's modelling:

- There is only "a small risk of large USE events in the future, these do not form a significant part of the overall reliability risk in the NEM"<sup>2</sup>;
- The form of the reliability standard adequately captures the majority of USE events that are likely to occur in the NEM;
- "maintaining the current form of reliability standard is a recommendation that will likely deliver the greatest net benefit for the long-term interests of consumers consistent with the NEO"; and
- alternative forms of reliability standard have no significant benefits over the current form.

The Draft acknowledges that no system can be 100 per cent reliable and if the reliability standard is employed to achieve this it would create excessive costs for consumers well beyond their willingness to pay for perfect reliability.<sup>3</sup>

The AEC did suggest that as part of its modelling scenarios, the Panel assess the adequacy of gas infrastructure to supply gas powered generation(GPG) when it is operating in an extended operations

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<sup>1</sup> <https://www.energycouncil.com.au/media/ifu5c3k/20240119-aec-sub-rel-std-apc-final.pdf>

<sup>2</sup> Draft, p. 11.

<sup>3</sup> Draft, p. 12.

manner ie, to manage reliability under an extreme weather event. We believe this work would be helpful because it would identify if the NEM could manage one of these extreme events and may assist policymakers when considering GPG's role in the transition. This does not appear in the Draft and we look forward to engaging with the AEMC further on this topic.

Other reasons set out in Chapter 3 of the Draft that are not discussed above are:

- The Draft provides a comprehensive explanation of how USE events are managed through rotational load shedding and how these events would affect consumers.<sup>4</sup> The Draft recommends that AEMO continue communicating the reliability standard in alternative ways. In the interests of better informing stakeholders and consumers, we support this. However, we also believe that any explanation should include similar detail (to the Draft) on how USE events are managed using rotational load shedding and clearly communicate how rare these events are and the reliability versus cost trade off.
- The market price settings (which are largely determined by the reliability standard), “alone are not a suitable tool for managing the risk of severe, low-probability events. In these circumstances, changing the form of the standard would still be unlikely to provide the incentives for the required investment.”<sup>5</sup> The AEC concurs with this reasoning and the Panel's decision not to recommend a change to the form (or even the level) of the standard.

Proposed improvements for the process:

- The AEC's previous submission recommended the modelling incorporate more comprehensive weather modelling.<sup>6</sup> Accordingly, the Draft's proposed process improvement to incorporate more detailed weather modelling is supported by the AEC. As is the proposal to explore better methods to incorporate weather in the demand traces.
- With respect to VCR and how it is applied in the Reliability Standards and Settings Review (RSSR), the AEC is supportive of refining how the VCR is applied. Especially, as in the future winter is likely to be when reliability risk is at its highest. Nevertheless, we would not like to see the VCR being used as a vehicle to introduce risk aversion and thereby create the perception of a higher 'willingness to pay' for an unnecessary level of reliability.

In addition to the proposed improvements for the process set out in the Draft, the AEC suggests that it may be worth considering if there are more effective techniques to estimate the probability of USE events. Currently, AEMO employs a Taylor series expansion to approximate expected USE:

“AEMO approximates USE by using weighted probabilities of 10% POE (30.4%), 50% POE (39.2%), and 90% POE (30.4%). As the risk of USE under 90% POE peak demand conditions is generally very low, simulations are avoided, and it is assumed that the USE under these conditions is zero.

The weightings have been derived using a mathematical approach. Expected USE was approximated using a Taylor series expansion. From three points – such as 10% POE, 50% POE, and 90% POE –the weighting for these can be derived perfectly when:

- Maximum demand POE outcomes are normally distributed.
- USE outcomes as a function of maximum demand can be approximated by a second order (or lower) polynomial.”<sup>7</sup>

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<sup>4</sup> Draft, p. 18 and Chapter 7

<sup>5</sup> Draft, p. 12.

<sup>6</sup> <https://www.energycouncil.com.au/media/ifu5c3k/20240119-aec-sub-rel-std-apc-final.pdf>

<sup>7</sup> [https://aemo.com.au/-/media/files/stakeholder\\_consultation/consultations/nem-consultations/2023/reliability-forecasting-guidelines-and-methodology-consultation/final/reliability-forecasting-guidelines-and-methodologies-final-report.pdf?la=en](https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2023/reliability-forecasting-guidelines-and-methodology-consultation/final/reliability-forecasting-guidelines-and-methodologies-final-report.pdf?la=en) p. 15

While these assumptions may currently hold, they may not continue to as the generation sector transitions away from dispatchable to variable renewable energy and energy demand patterns may also change. Therefore, it may be worth considering other approaches. For example, a recent research paper investigated probabilistic electric load forecasting through Bayesian Mixture Density Networks. Its authors described it as “a first step towards the full exploration of Bayesian Mixture Density Networks for probabilistic load forecasts”.<sup>8</sup>

The AEC agrees with the Panel in that there are other reforms outside of the RSSR framework that have the potential to mitigate the risk of extreme events. However, of those listed in the Draft, the AEC has consistently argued that the RRO and IRM are both counterproductive and merely add costs for consumers.

**Form of Administered Price Cap (APC)**

The AEC supports the Panel’s draft recommendation to maintain the APC in its current form: Fixed at \$600/MWh and be subject to review at each four yearly RSSR. The events of June 2022, where an inadequate APC level was a fundamental cause of the suspension of the NEM are likely to ensure that the APC is adequately scrutinised at each RSSR.

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Yours sincerely,

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<sup>8</sup> <https://arxiv.org/pdf/2012.14389>