Shell ENERGY

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Submitted electronically

RE: REL0082 – 2022 Reliability Standard and Settings Review

Shell Energy welcomes the opportunity to provide the following submission on the 2022 Reliability Standard and Settings Review draft report (Report). We provide the following comments on the Report noting that it will be crucial for these settings to be re-examined in the event of a capacity market, in any form, being implemented in the NEM.

About Shell Energy in Australia

Shell Energy is Shell's renewables and energy solutions business in Australia, helping its customers to decarbonise and reduce their environmental footprint.

Shell Energy delivers business energy solutions and innovation across a portfolio of electricity, gas, environmental products and energy productivity for commercial and industrial customers, while our residential energy retailing business Powershop, acquired in 2022, serves more than 185,000 households and small business customers in Australia.

As the second largest electricity provider to commercial and industrial businesses in Australia[1], Shell Energy offers integrated solutions and market-leading[2] customer satisfaction, built on industry expertise and personalised relationships. 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.

Shell Energy Australia Pty Ltd and its subsidiaries trade as Shell Energy, while Powershop Australia Pty Ltd trades as Powershop. Further information about Shell Energy and our operations can be found on our website here.

Modelling

In considering the need for adjustments to the reliability standard and settings to be applied for the period 1 July 2025 to 30 June 2028 Shell Energy notes that the modelling undertaken for this review indicates that no reliability gap or exceedance of the current reliability standard is forecast for any region under the base case, most likely, scenario. This suggests that the current reliability settings are expected to achieve the required outcome through the period for which this review applies. Notwithstanding, Shell Energy provides the following comments on the modelling for consideration.

Shell Energy notes that there is no assumption of 90% probability of exceedance (POE) made in the modelling. In historical reliability assessments this scenario was assumed to deliver no unserved energy (USE) and was given a weighting of 30%. We note that the exclusion of the 90% POE demand outcomes biases the sample results that include unserved energy (USE) and statistically increases the percentage of simulations where USE occurred by 67%. The creates a perception that the reliability risk and the value of improved reliability is greater, in particular in the "tail" area, than is statistically or economically the case.

We are concerned that the current methodology which allocates 30% probability weighting to the 10% POE demand outcomes is overstating the level of "tail" risk compared to observable outcomes. In our view the perception of this "tail" risk may be greater than the actual statistical risk. The Australian Energy Market Operator's (AEMO's) reliability assessment modelling data from the Electricity Statement of Opportunities (ESOO) and the Medium-Term Projected Assessment of Adequacy (MT PASA) indicates that greater than 90% of forecast USE is associated with 10% POE demand events, often only occurring when combined with very high levels of thermal generator forced outages, very low levels of variable renewable energy (VRE) generator output and transmission network forced outages. Statistically the probability of the simultaneous combination of 10% POE Demand, plus 10% POE thermal generator outages, plus 10% POE (low) VRE generator output is 0.1%, yet in the current modelling it is allocated a weighting of 43% of the probability of occurrence of a P50 + P50 + P50 outcome despite the later having a 12.5% probability of occurrence.

We also note concerns around the areas of periods that the Report refers to as "dunkelflaute" or low VRE generation due to co-incident low solar and wind generation events and also potential issues with insufficient storage capacity and duration to maintain supply during extended low VRE generation periods. Shell Energy's understanding is that the AEMO

[1]By load, based on Shell Energy analysis of publicly available data.

[2] Utility Market Intelligence (UMI) survey of large commercial and industrial electricity customers of major electricity retailers, including ERM Power (now known as Shell Energy) by independent research company NTF Group in 2011-2021.

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VRE traces used in the modelling include periods of very low VRE generation output, ("dunkelflaute"), as they are based on a combination of both historical VRE generation output as well as synthesised VRE generation output constructed from a large number of weather sites across the NEM for which wind speed and solar irradiance measurements are available and correspond to AEMO's forecast of where VRE generators are most likely to locate as set out in the integrated system plan (ISP). Similarly, we understand that AEMO applies a somewhat conservative value with regards to allocation of capacity from energy storage systems. This will ensure that reliability gaps associated with a "dunkelflaute" and energy storage systems is already captured and assessed in the modelling and the various ongoing AEMO reliability assessment reports.

If emphasis is to be placed on this "tail" risk area in the Panel's future assessment process, we consider that this area of risk needs to be better modelled and understood than is currently the case. We recommend that modelling at 70% and 30% POE demand levels should also be undertaken and that the 90% POE demand level must also be given a weighting as discussed above. In addition, greater emphasis needs to be placed on understanding the probability of occurrence and underlying cause of any high USE scenarios. It is possible that outcomes in the modelling are being interpreted as reliability USE events when in fact they may be system security events.

We also note that the Report indicates that planned outages have been modelled for generators. The details of how these outages were implemented in the model are unclear. However, we note that typically planned outages would not impact materially on forward looking estimates of reliability USE due to the assumption that the plant would reschedule a planned outage in advance of a declared low reserve condition or an identified reliability gap.

Lastly, the Report also sets out concerns with regards to the potential for ramping events associated with high VRE output ramping or possibly generating unit or transmission network element failure. Historically, ramping limitations have not been a cause of USE and no evidence has been presented in the Paper, or in fact other AEMO reliability assessment reports, to suggest that it will become an issue in the future. We consider that the flexible generation types expected to be installed to allow firming of VRE generator output also intrinsically possess high ramp rate capability able to respond to high VRE generation output ramp-off events.

Form and Level of the Reliability Standard

Shell Energy supports the Panel's view that LOLP and LOLE are reliability measures unsuited to the needs of the national energy market. We also support the view that tail risk may increasingly drive the outcomes from future reliability assessments. However, improved modelling is required to better understand if this will be the case. Based on this data and assessments set out in the Report we believe that the USE measure is sufficient to capture the contribution of these events to reliability outcomes. We therefore support the view of the Panel that the current unserved energy measure of reliability be kept as the standard.

Shell Energy does not see material benefits resulting from any change to the 0.002% level of the reliability standard. We are concerned by what we consider to be an inconsistency in the modelling outcomes which would suggest that a reduction in the standard to 0.0015% would be an efficient outcome based on the current levels of value of customer reliability (VCR). Our concern stems from the difference in the VCR outcomes between the Australian Energy Regulator's (AER's) 2019 update and the AEMO 2015 survey which applied at the last review of the reliability standard and settings. VCR levels in the more recent AER update are lower in real terms than the reported AEMO values. This indicates that consumers in general have lowered the amount they are prepared to pay for system reliability in real terms. We also note that in general the VCR determined by the AER for residential consumers reduced in real terms by a larger percentage than the average compared to the earlier 2015 AEMO survey. As residential load is the most at risk of interruption during an involuntary load shedding (ie reliability USE) event, we recommend the Panel also consider the 2019 AER VCR results for residential load in isolation when considering the appropriate level for the reliability standard and the MPC.

Shell Energy is concerned by suggestions in the Report that adoption of a two-part standard, with a new standard for tail risk, should be considered in future reviews. We do not believe that the modelling undertaken to date as part of this review is sufficiently detailed to justify such an outcome. In addition, it is our view that operationalising such an outcome may prove difficult and result in increased and unwarranted market intervention at additional cost to consumers for little benefit. We note that to date consumers have incurred significant intervention costs in the NEM, particularly in the area of procurement of reliability and emergency reserve trader (RERT) contracts which, based on AEMO's reports, have not directly resulted in any reduction in the level of reliability USE. Shell Energy does not support any change in this area and recommends the single form of the reliability standard be retained.

In assessing the need for the adoption of a two-part standard, the Panel needs to make judgements regarding the level of risk aversion that would meet consumers requirements, including the additional costs of achieving this. In assessing this question we recommend that the Panel consider the relationship between forecast reliability USE and loss of supply due to network events. From a consumer's perspective the end result is identical. Consumers have been quite vocal regarding what has been perceived as "gold plating" of networks to achieve reductions in supply interruptions due to network events, and the additional costs to consumers of achieving this. It is unclear to Shell Energy that consumers would be prepared to pay even a small increase in costs to reduce what has historically been, and forecast to be, less than 1% of

time of potential supply interruption. The AER's 2019 VCR report provides some guidance for the Panel in this area and we recommend the Panel seek further views from consumers as to what is a reasonable level of risk aversion before progressing any change in this area.

We also note that the modelling outcomes suggest forecast unserved energy does not exceed the reliability standard in any region in the period for which this review applies. Only by the application of the synthetic withdrawal of additional dispatchable generators is the modelling able to exceed the reliability standard. We also consider that it should be noted that there are numerous new supply side projects which have commenced construction that are still defined by AEMO as an "anticipated" project and as such would not be included in the base case modelling assumptions. Consideration of these projects in future modelling would further lower expectations of forecast USE outcomes.

MPC and CPT

Shell energy supports the Panel's intention to focus its efforts on determining the appropriate level of the MPC and CPT rather than changing the form of these market parameters. The discussion above outlines Shell Energy's observations on appropriate considerations to be taken into account regarding the modelling and approach to take when determining these levels. We note the $21,000 to $29,000/MWh range for the market price cap identified in the Report and consider that the final modelling may show a level between this range and the current market price cap. Given the magnitude of the potential increase in the market price cap we believe that the Panel should also consider the significant extra risk that retailers will be exposed to and seek to understand the potential costs to consumers from such a large increase in risk exposure.

We also note that the $21,000 value is based on a new entrant OCGT required to achieve the level of reliability USE consistent with that used for achievement of the current reliability standard. The higher $29,000/MWh value, on the other hand, is that required for up to four-hour BESS under which the reliability standard would also increase to approximately 0.0045% to achieve the economically efficient outcome.[3] Whichever value is finally recommended by the Panel, consistency between the MPC and the efficient level of the reliability standard must be maintained.

We have noted one area of concern with regards to the modelling in this area. This relates to the statement,

> *IES's investigation has identified that the potential for lower MPC in VIC by solving for VIC and NSW together in the optimisation model would be immaterial given the highly constrained interconnectors between regions during USE events.*[4]

We agree with the statement with regards to the period 1 July 2025 to 30 June 2028, however, transfer limitations between Victoria and New South Wales in both directions are expected to be improved when priority network projects set out in the 2022 ISP are commissioned. We recommend that the Panel also consider this when considering the level of the MPC as its exclusion may lead to potential volatility in the level of the MPC.

Regardless of the final modelled outcome, Shell Energy is generally supportive of the approach being taken by the Panel thus far, subject to issues identified in this submission with the current modelling being addressed. Shell Energy supports a single, NEM-wide level for the MPC and CPT. Indeed we question how different levels in different regions could practically function. If the values of the MPC and CPT are to be changed, we support the proposed gradual phase in over the three-year period.

Administered Price Cap

Shell Energy notes the administered price cap (APC) period and market suspension which occurred in the NEM during the period 12 to 24 June 2022. We consider that the observed market outcomes resulted primarily from the lack of alignment between the APC in the gas markets and the NEM. High gas and liquid fuel prices fed directly into the short run marginal cost of NEM generators which was well above the current APC level. It is arguable that the inconsistency between the APC levels in the gas markets and the NEM may well have contributed to the events in June 2022. We support the Panel taking into consideration any change to the APC that would more closely align these markets.

We believe the Panel should consider as part of this review what changes to both the Gas and Electricity Rules need to occur to ensure a consistent approach is applied in reviewing and setting the price settings for both markets. In this regard we question the current arrangement which sees the Reliability Panel review and recommend the settings to be applied to the NEM but requires AEMO to separately review and set the same settings for the gas markets. We consider that there would be value in the Panel reviewing and recommending the settings for both the NEM and gas markets so that a consistent approach is applied.

[3] Reliability Panel – 2022 Reliability Standards and Settings Review Draft Report – Pages 59 and 81
[4] Reliability Panel – 2022 Reliability Standards and Settings Review Draft Report – Pages 86

Market price floor

As noted in our previous submission, Shell Energy supports retaining the current approach and level for the market price floor and therefore supports the Panel's position in this draft report.

For any question regarding this submission please contact Peter Wormald (peter.wormald@shellenergy.com.au).

Yours sincerely

[signed]

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