29 January 2026

Reliability Panel
c/- Australian Energy Market Commission
Level 15, 60 Castlereagh Street
Sydney NSW 2000

RE: REL0094 – 2026 Reliability Standard and Settings Review

Shell Energy Australia (Shell Energy) thanks the Reliability Panel (the Panel) and the Australian Energy Market Commission (AEMC) for the opportunity to provide feedback on the National Electricity Market (NEM) 2026 Reliability Standard and Settings Review (RSSR) Draft Report (the Report).

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 households and small business customers in Australia.

As the one of the largest electricity providers 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 service. 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 also operates the 60MW Riverina Storage System 1 in NSW, as well as the 200MW Rangebank Storage System and 370MW Koorangie Storage System both located in Victoria.

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.

Key Points

This submission expands on the following key points:

- The proposal to loosen the reliability standard is sensible based on the robust analysis undertaken by the Panel.
- The Market Price cap and Cumulative Price Threshold should be maintained according to the proposal in the Draft Report. The level of the reliability standard that would deliver this outcome based on the analysis presented is higher than the proposed 0.003% if reliability outcomes in all NEM regions are considered appropriately (ie 0.004 to 0.0045%).
- The Panel has recommended a mechanism for automatically placing the spot price at the market floor price during a declared MSL3 events. Shell Energy does not support this proposed change.
- Setting the administered price cap to a level that only considers the short run marginal cost of open cycle gas plant may not provide efficient price signals during future administered price periods.

[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.

Consideration of the appropriate price level needs to include the cost of stored energy during these periods which could be materially higher than gas plant due to the high potential for unavailability of renewable resources at times of future market stress.

General Comments

Shell Energy notes that the reliability standard and settings under consideration by this review will apply to the period 1 July 2028 to 30 June 2032. During this period there is forecast to be the retirement of approximately 8,100 MW of the registered capacity of the firm schedulable thermal generation fleet across the NEM Mainland regions (21% of Queensland, 26% of NSW, 21% of Victoria and 43% of South Australia - totalling 25% of the Mainland regions[3]). This firm schedulable generation capability is forecast to be replaced by intermittent renewable energy generation and energy limited energy storage resources.

Shell Energy acknowledges the detailed analysis in many areas and the work undertaken by the Panel and AEMC staff in preparing the Report. We also support the Panel's view that the standard and settings should;

- balance the delivery of the reliable level of electricity supply which meet customer's expectations while minimising costs for customers, and
- maintain regulatory stability and minimise uncertainty for market participants to maintain the efficient investment signal for both demand and supply based resources.

Following is our direct feedback on issues set out in the Report.

Level of the reliability standard

Shell Energy considers that based on the modelling results presented the draft report, the appropriate Standard is likely 0.004% to 0.0045%. In considering the potential range for the level of the standard we note the information provided in both Figure 2.2 and Figure 4.4 [4] indicates that the "flat" area of the derived economically efficient curves extends through to 0.005% USE for the Victoria and South Australia regions, rather than 0.004% USE as suggested in the report. We also note that the leading, or left-hand edge, of these economically efficient curves occur at a standard closer to 0.005% USE for these regions. This has implications for the view expressed in the Report that;

> *"In setting the standard level, the Panel must ensure the outcome is fit-for-purpose across all regions, so that it adequately protects consumers in every state while not over-investing in any one area."*[5]

Our understanding of the analysis set out in the report is further supported by details from Figure 3.1[6], which sets out the economically efficient frontiers of market price cap and cumulative price threshold (MPC/CPT) combinations at different levels for the Standard if the MPC/CPT are maintained at current levels. Whilst 0.003 to 0.0035% USE would be considered the efficient frontier for the New South Wales and Queensland regions the same is not held true for the Victoria and South Australia regions where a higher level of USE is indicated.

We recommend that the Panel consider a methodology that appropriately weights the Standard to be applied nationally across all regions. Such weightings could be applied based on forecast annual regional energy consumption, or alternatively, forecast peak maximum yearly demand or a combination of these two across

[3] AEMO Generation Information Page – Generator Expected Closure Years- **AEMO | Generation information**
[4] Draft Report - Pages 15 and 49 respectively
[5] Draft Report – Page 17
[6] Drat Report - Page 25

regions. Figure 3.1 suggests that a Standard of 0.004 to 0.0045% USE may be close to the weighted average across the NEM Mainland regions if the current FY2028 MPC/CPT combination is to be maintained as recommended in the Report.

Shell Energy supports the methodology by which the analysis was undertaken by the Panel. We note and support the practical translation of what the reliability standard (the Standard) means for consumers: that is, a Standard of 0.004% unserved energy (USE) could on average result in loss of supply of approximately 21 minutes per customer on an annual basis due to wholesale market reliability issues.[7] We also note that the Standard is based on USE which occurs within a single financial year period and not an average over multiple years where high USE in one year can be offset by low or zero USE in other years within the defined multi-year period.

Setting the Standard at 0.004% USE would continue to represent on average less than 1% of the loss of supply issues historically experienced by consumers[8] with the overwhelming majority of loss of supply issues occurring due to failures in the distribution network.

Shell Energy supports the current status quo where the value of the Standard and the reliability settings is the same across all National Electricity Market (NEM) regions to prevent inefficient market outcomes and that the level of the standard must support the efficient outcome in all regions. This is also supported by the Panel's view that;

> *"It must be set nationally to reflect the level of reliability that is in the long-term interests of consumers".*[9]

We acknowledge and support the Panel's analysis for this review which determined that open cycle gas turbines (OCGT) are the lowest cost marginal entrant to efficiently meet the Standard across all scenarios during the defined period. Shell Energy also notes the Panel's observation that further declines in the cost of battery energy storage system (BESS) may result in this technology emerging as the lowest cost technology in future RSSR's.

We agree that estimating the revenue requirements for BESS is complex and challenging and recommend particular attention be focused on the costs of energy availability for BESS charging during periods where reliability shortfalls are indicated in the modelling. Shell Energy considers that it's not only the direct capital cost of BESS that must be considered, but also the ability for BESS or pumped hydro (PHES) to access sufficient energy for storage to prevent or reduce the impact of any reliability event. Unlike a thermal generator, such as an OCGT, BESS and closed loop PHES cannot produce active energy output, and the provision of other services such as FCAS, system restart or power system security services also relies on the same stored energy as for reliability for their provision. Both BESS and PHES would be consumers of energy from the grid, in net terms, during potential reliability stress periods which as indicated in the Report may be aligned with very low output from intermittent renewable energy generation resources.

Shell Energy notes that in considering both the level of the Standard and the MPC/CPT combinations to meet the standard, the Panel has undertaken additional analysis to consider the impact jurisdictional support schemes that could underwrite new entrant generation by reducing their investment risk. We support the Panel's conclusion that;

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[7] Draft Report - Figure 2.1 page 11

[8] This is based on the data supplied in the Report that the loss of supply to consumers from the current standard of 0.002% has historically been approximately 0.1% of energy supply interruptions between FY's 2011 and 2024. Figure 1.0 page 2 of the Draft Report.

[9] Draft Report - Page 13

"Given that jurisdictional schemes are designed to complement, rather than substitute for, the reliability framework investment signals, the Panel has assessed total system costs on a purely market basis, without explicitly modelling jurisdictional support schemes. However, we did carry out a modelling sensitivity to reflect a possible reduction in the cost of capital for technologies that are eligible for jurisdictional support, and found the impact to be largely immaterial."[10]

As discussed in the Report, one of the key inputs in determining both the values of Standard and the required MPC/CPT combination is the value that consumers place on reliability. The analysis in the report uses the current value of customer reliability (VCR) as determined in 2025 by the Australian Energy Regulator (AER). We note this VCR calculation as such does not align with the future time period in the NEM which is under consideration by this RSSR. Whilst the Panel has undertaken sensitivity analysis on the VCR, it's unclear that this will adequately address potential future changes that consumers may place on the value of reliability associated with;

- The forecast significant increase in home BESS installations associated with the rollout of the Commonwealth Government Home BESS subsidy program
- The forecast increase in vehicle to grid capability of battery electric and plug in hybrid electric vehicles.

For the final report, Shell Energy recommends that the Panel consider if further work is required to better consider the impacts of these factors.

The Reliability Settings

Market Price Cap and Cumulative Price Threshold

Shell Energy acknowledges the Panel's view, which is supported by analysis in the Report that to maintain the current Standard of 0.002% USE would require an increase in the MPC/CPT combination.[11] We also support the publication in the Report of the details set out in Figure 3.1, which sets out the economically efficient frontiers of market price cap and cumulative price threshold (MPC/CPT) combinations at different levels for the NEM Mainland regions. However, we don't agree with the Panel's view that;

"Analysis shows that the current market settings would result in reliability outcomes of approximately 0.003% USE.[12]*"*

As noted above, whilst 0.003% USE may be close to appropriate for the NSW and Queensland regions, if the intention is to retain the current levels for the MPC and CPT, the data in Table 3.1 indicates this would be an unsatisfactory outcome for the Victoria and South Australia regions. We consider that using a weighted average calculation so as to ensure the MPC/CPT will be appropriate for all NEM regions would be a more inclusive outcome and better reflect the value consumers place on reliability across all NEM regions.

Shell Energy supports the proposed outcome to adjust the Standard to an appropriate level which maintains, as close as possible, the current levels of MPC and CPT. This aligns with the views expressed in most submissions

[10] Draft Report – Page iii
[11] Draft Report - Page 26
[12] Draft Report - Page 26

to the Issues paper that regulatory stability is critical to deliver the investment needed to meet future reliability in the NEM.

We also support the Panel's recommendation that;

> *"The current form of the CPT remains fit for purpose and most effectively manages excess financial risk in a manner that is sensitive to adverse conditions, while minimising unpredictable administrative pricing periods (APPs)".*[13]

We also acknowledge that in determining this the Panel considered other forms of the CPT and concluded;

> *"After examining the alternative formulations, the Panel's draft recommendation is that the current form of the CPT adequately manages financial risks, retaining the incentive for retailers and generators to enter into their own risk management contracts, while mitigating excess risks that could cascade through the market. Furthermore, the current form of the CPT retains a certain level of agility while retaining effective price signals and not imposing unnecessary regulatory burden on market participants or damaging the effective operation of derivatives markets".*[14]

Market Floor Price

The Panel has recommended a mechanism for automatically placing the spot price at the floor during a declared MSL3 events. Shell Energy does not support this proposed change. We note the analysis set out in Figure 3.2 [15]that the frequency of market floor price (MFP) outcomes in the NEM's wholesale spot market has significantly reduced and also the Panel's view that following recent changes in the NEM, "*MFP and near-MFP events are rare and becoming less frequent*".[16]

We also note that the Panel, in determining any adjustment to the MFP, would consider;

> *"whether there have been significant changes in the generation fleet, such that average generator cycling costs have changed significantly"*[17]

Shell Energy recommends that for the final report, in addition to considering if there have been any changes, that the Panel also considers if there are forecast to be any changes in the market expected to occur during the time-period covered by this review. We highlight the expected retirement of less flexible thermal generation and their replacement with generation resources which may have negligible cycling costs, as well as the already observed increase in generation withdrawing from the market at prices not far below $Zero, as well as reductions in generators technical minimum sustainable load and testing of thermal generators, which were physically designed for two-shifting, undertaking testing in this area. There is also the ongoing roll out of energy storage systems which will need to consume energy from the power system most likely aligned with times of lower spot prices. With these actual observable and forecast changes occurring in the NEM, it is unclear to us if the costs of and technical need for plant cycling will be as critical to efficient market operations as was once the case.

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[13] Draft Report - Page 27
[14] Draft Report - Page 31
[15] Draft Report - Page 32
[16] Draft Report - Page 32
[17] Draft Report - Page 31

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Further, in considering the economic incentives for large thermal generators to respond to very low wholesale market spot prices, we recommend the Panel also consider the impact that firm volume swap contracts have on these incentives and if additional or reduced costs to consumers would occur if the MFP was changed. Firm volume financial contracts act to weaken the signal supplied to thermal generators by the wholesale spot market alone and it is primarily the saving in cost of fuel as opposed to the direct wholesale spot market costs which incentivises generators to reduce load or consider decommitment.

We note the Panel has already concluded that additional system security contract costs could be incurred by consumers if a reduction in the MFP was recommended.

> *"Further lowering it would add volatility and downside risk primarily to generators, which could have knock-on effects (for example, requiring more system security payments from networks when units operate at very negative prices for system security reasons[18]".*

Shell Energy considers the same would apply to compensation costs associated with any clause 4.8.9 direction by AEMO to a generator to continue to operate during very low wholesale spot market outcomes.

Whilst supportive of the Panel's recommendation to retain the MFP at its current values of -$1,000, there are a number of factors highlighted here in the submission as well as in the Report which are forecast to apply to the period to which this review applies, suggesting that further consideration of a higher MFP is warranted.

It is unclear from the report as to what consideration has been applied by the Panel regarding the proposal to automatically apply the MFP during periods of declared MSL 3 events, and the changed incentives such a change would introduce to efficient operation of the market, and what unintended consequences may arise. For example;

- If forecasts exist for a minimum system load (MSL) 3 event, this could incentivise the withdrawal of grid connected and VPP controlled energy storage systems from normal energy storing outcomes whilst they await declaration of an MSL3. This may then also result in cycling of MSL 3 declarations as commencement of energy storing by these resources results in the MSL3 condition no longer being applicable.
- Artificial setting of the wholesale market spot price to the MFP may result in inefficient wholesale spot price outcomes where the efficient price for energy storage is corrupted.
- The proposed approach may have an impact on vertically integrated retailer behaviour with respect to their net load position.

These are just some of the issues which warrant further consideration with respect to this change to the application of the market floor price. We would be happy to discuss additional issues with the Panel.

The Panel has acknowledged the observed changes in the market, in particular the decommitment of generators at wholesale market spot prices closer to $Zero. In this submission we have recommended the Panel more closely consider the impacts that firm volume financial contracting may have on a thermal generator's decision process for unit cycling. In addition, we have highlighted the large capacity of less flexible generation that is forecast to close during the time period in the NEM this review covers. There is also the underlying need for a number of thermal generators to remain on-line at all times to provide power system security services. In our view these factors call into question the view in the Report that the proposed change may result in some generators pre-emptively withdrawing (reducing supply) should an MSL3 be forecast by AEMO.

[18] Draft Report - Page 34

Shell Energy notes that in the Report the Panel has determined that non-scheduled load is not exposed to spot prices, and negative prices do not, therefore, necessarily represent a signal for load to ramp up or turn on[19]. Also, where some may exist, "price-responsive consumers do not participate directly in the wholesale market and thus respond to price signals via an aggregator or retailer[20]". It is therefore unclear to us who this modified price signal is actually intended to be delivered to. And who would therefore be incentivised to either increase demand or decrease distributed generation.

In addition, the Report does not set out how market settlements would function under this artificial setting of the wholesale market spot price to the MFP. This raises the question of how these settlements costs would be apportioned. Particularly if, in the future, limited scheduled generation is generating active energy output at the time a MSL3 event is declared. Some scheduled generation may be required to remain in-service to provide power system security services but the cost of this will be socialised across all consumers, not just those injecting energy from rooftop solar resources. Shell Energy recommends that if the Panel ultimately proposes this change then the final report must provide details of how market settlements would continue to function effectively and how efficient price signals would be communicated.

In considering the question of benefits from the proposed change, it is unclear to us what the potential frequency or magnitude of MSL3 events will be in a market where the efficient pricing signals are maintained, given the forecast for increased volume of grid connected and distributed home energy storage systems in the power system.

However, this raises a question for the Panel's consideration regarding the definition of operational demand from which MSL events are forecast or declared. Currently all scheduled loads, BESS charging and PHES pumping, is not considered by the Australian Energy Market Operator (AEMO) to form part of operational demand. Non-scheduled consumption by home connected BESS however is included in the operational demand vales and forecasts. Whilst there have been some MSL1 and 2 events declared in South Australia, real time market data with the inclusion of scheduled load as operational demand indicates that the respective MSL thresholds were not actually exceeded. There are other examples of such outcomes which can be made available to the Panel.

[19] Draft Report - Page 34
[20] Draft Report - Page 34

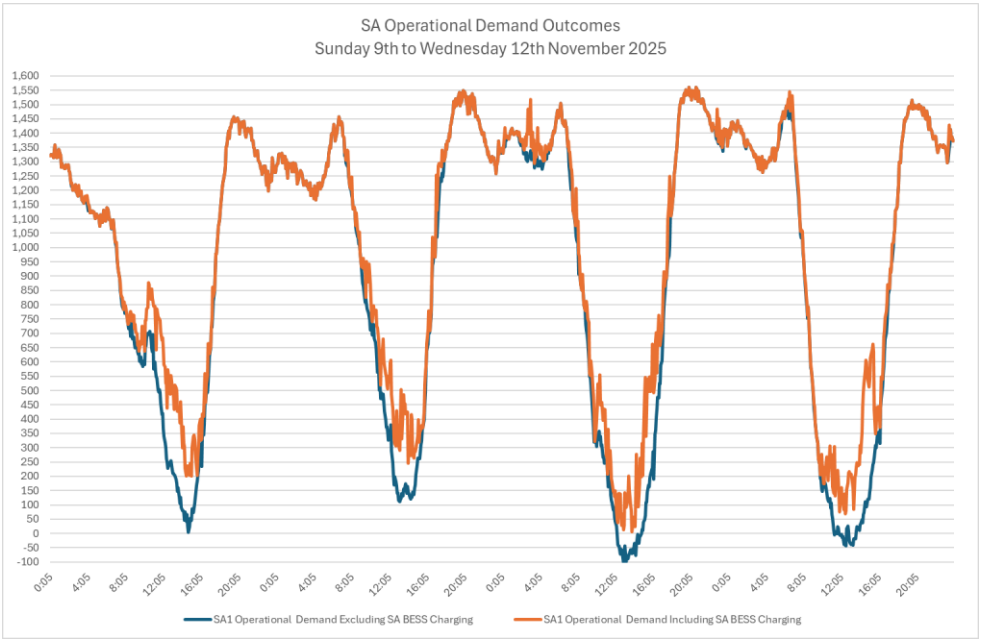

Figure 1: Operational demand with and without scheduled load contributions

Historically, scheduled load was only a small component of consumption from the grid. However, both the current and the forecast level of increasing installation of grid connected BESS and PHES indicates the inclusion of scheduled load in the operational demand value is warranted and this of itself may mitigate the potential for MSL events. We ask the Panel give consideration to a recommendation regarding the requirement to include scheduled load in the operational demand values and operational and planning forecasts.

Lastly, we don't agree with the Panel that setting the wholesale market spot price at the MFP when a MSL3 event is declared is akin to setting the price at the MPC when involuntary load shedding (ILS) is implemented by AEMO. The setting of the price to the MPC when ILS is implemented is effectively the same as the outcomes that would exist following the application of the intervention pricing provision of the National Electricity Rules (the Rules). In the case of ILS there is no technical alternative as all scheduled market resources have been dispatched to meet demand. When considering MSL events there are technical alternatives for market intervention by AEMO. In the case of the proposed change the primary cause of the MSL issue as noted by the Panel is non-scheduled, non-market distributed energy resources which the Panel have determined don't respond to price signals. It therefore remains unclear to us who is the recipient of the proposed changed price signal.

Administered Price Cap and Floor

In reviewing the value of the administered price cap (APC) and administered price floor (APF) which apply to any period in which an administered pricing period (APP) applies, we understand the Panel indicated an intention to consider if there have been any "significant changes in the typical short-run marginal costs of generators in the NEM[21]" However, it is unclear in the report if the Panel has considered other factors than the potential fuel costs for higher cost thermal generation. For instance, how did the Panel appropriately determine the short run marginal costs (SRMC) for energy storage resources and demand response so as to maintain their incentives to remain operational during APC events? Whilst $600 may adequately cover the fuel costs for thermal generation during market stress conditions, it is unclear that this value would cover energy storage costs

[21] Draft Report - Page 37

and storage efficiency losses for energy storage resources where energy to be stored is primarily sourced from thermal generators.

The Panel in the report also indicates;

> "*If the APC is too low and a high-cost generator is dispatched nonetheless, it has the option to pursue a compensation claim to ensure it recovers all eligible costs. However, this is an expensive and time-consuming process. As such, the Panel considers it highly desirable to ensure that the APC is sufficiently high to minimise the likelihood of triggering a compensation claim.*"[22]

We agree with the Panel's view that the compensation process is expensive and time consuming and only allows the recovery of costs deemed "eligible". Shell Energy believes that applying for compensation should be a last resort outcome and that the value of the APC should adequately reflect the costs required for an energy storage resource to actively continue market operation without the need for AEMO market intervention during market stress conditions. As lower cost thermal generation retires and is replaced by energy storage resources, the APC must support their ability to continue to participate in the market if reliable supply to consumers is to be maintained. It is unclear that aligning the APC with only the fuel costs of higher cost thermal generation will achieve this outcome. We request in the final report that the Panel provide the methodology by which the SRMC for energy storage resources was determined.

Shell Energy acknowledges that with respect to the value of the APC, the Panel must consider the objective of the APP provisions to minimise the potential for contagious financial distress and reduce the risk of financial instability in the market during extreme market events. This does not mean that the level should be set so low as to remove risks from every market participant. We would like to think a balanced approach can be implemented to achieve this objective but also incentivise the continued operation of energy storage resources during an APP without the need for market intervention. We don't believe an APC value of $600 achieves this outcome.

Lastly, we don't consider that the values of the APC and AFP must align, and in our view would be better to be set independently to achieve the objectives of the APP provisions as indicated above.

Shell Energy would welcome the opportunity to further discuss the issues raised in our submission with the Commission. If you have any questions or would like further details relating to this submission, please contact Peter Wormald at peter.wormald@shellenergy.com.au.

Yours sincerely,

Libby Hawker
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[22] Draft Report - Page 38