



Mr Charles Popple
Chair, Reliability Panel
c/- Australian Energy Market Commission

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04 March 2022

Dear Mr Popple,

2022 Reliability standard and settings review Issues Paper (REL0082)

ENGIE Australia & New Zealand (ENGIE) appreciates the opportunity to respond to the Reliability Panel (“the Panel”) in response to the 2022 Reliability Standard and Settings Review (“the Review”) Issues Paper (“the Issues Paper”).

The ENGIE Group is a global energy operator in the businesses of electricity, natural gas and energy services. In Australia, ENGIE has interests in generation, renewable energy development, and energy services. ENGIE also owns Simply Energy which provides electricity and gas to around 750,000 retail customer accounts across Victoria, South Australia, New South Wales, Queensland, and Western Australia.

The environment in which the review is taking place

ENGIE recognises the uniquely challenging environment in which this review is taking place. These challenges have largely been captured in the Issues paper and include a number of events and trends, including multiple interventions, that have manifested since the last periodic review in 2018 (as noted at Appendix A).

Despite the level of reliability interventions, unserved energy has not breached the reliability standard since 2008/09. Nor is AEMO forecasting the need for new investment to meet the reliability standard until 2029/2030, beyond the end of the period under consideration in this review.

This is one indicator that the Panel is carrying out its review in an environment of increasing political scrutiny on energy market outcomes. To some extent this has always been a factor; despite the majority of outages being network-related, and the worst outage event in NEM history being a security event (the South Australian black system), the symbolism of “running out of energy” has always had negative connotations (and understandably so). Conversely, although few consumers ever directly pay for electricity at the market price cap, it is often cited in media coverage of the industry.

ENGIE advises that while the Panel should be cognisant of this broader political landscape, it should not distract the panel from its task of determining an economically defensible suite of reliability standards and settings. In this respect, it should consider the individual and cumulative impact of the reliability settings on

investment incentives, both in existing and new assets, and whether they remain adequate to meet the standard.

The scope of the review

ENGIE notes that since the publication of the issues paper, the Australian Energy Market Commission (“the Commission”) has made a more preferable final rule that extends the timeframe for this review but maintains the scope. ENGIE commends the Commission on this decision; while it is challenging for the Panel to conduct its review in parallel with the potential development of a capacity mechanism, this should not reduce the scope of the review.

Notwithstanding the clear policy intent, it is not certain at this stage that a capacity mechanism will be implemented, nor the details of how it will interact with the energy-only market (EOM). Therefore, it is prudent that the Panel has the opportunity to consider the reliability settings that will apply through to 2028 as well as the standard.

Reliability standard

The form of the standard should remain a probabilistic one. Given the increasing role of weather-dependent renewables, a deterministic standard is inappropriate. A minimum reserve-based standard is also poorly compatible with a system that is expected to have increasing capacity of storage. A battery is a reliable contributor when it is fully charged but not when it is discharged, so the duration of scarcity events is an important consideration.

ENGIE acknowledges the Panel’s recognition that no single metric captures all dimensions of reliability: frequency; magnitude; duration. Nonetheless, the current metric of unserved energy (USE) is well-established, and a very high bar should be set for the merits of replacing it with an alternative.

While multiple standards may appear to address the drawbacks of relying on a single measure, it’s generally the case that the greater the range of targets/standards/goals an organisation is required to meet the harder it becomes to optimise performance against them all. AEMO’s ability to operationalise multiple standards may be compromised compared to a single standard.

That said, ENGIE understands there is some desire amongst the jurisdiction to change the USE metric to a more conservative value. As ENGIE has previously indicated, the trade-off between energy “reliability” and price is as much a technical as it is a political economic decision and it may be timely to have this discussion in a transparent and mature manner so as to enable any potential change to be fully considered by consumers, who would ultimately bear the cost, and investors whose resources would need to be committed to meet any such change.

Reliability settings

There are multiple ways to interpret the introduction of additional reliability mechanisms over and above the existing EOM settings. One is that the energy transition is stretching the functioning of the EOM to breaking point. Another is that - with the benefit of hindsight – key reliability settings such as the market price cap (MPC) and cumulative price threshold (CPT) have been set too low, and these additional mechanisms have been set to compensate for that.

The RERT/interim reliability reserve is a case in point. This has been activated each summer since 2017/18, and the effective cost/MWh was typically higher than the market price cap (though below the value of customer reliability). This carries some implication that reliability could be more efficiently met through in-market resources incentivised by a higher MPC.

(It would be remiss not to note, that there have been well considered calls to increase the MPC for much of the past two decades, and that the reasons for not advancing these changes has not always been well constructed.)

Market Price Cap (MPC)

The market price cap is the most important of the settings for incentivising adequate dispatchable capacity, especially while it also serves as a reference point for the CPT. While much of the NEM's history was characterised by overcapacity, the progressive closure of coal capacity means that new investment in flexible dispatchable capacity will be required to continue to meet reliability. Some of this capacity may only be required rarely, as the supply curve net of renewables grows progressively steeper. It's thus increasingly important to be confident that the MPC is set at the right level to attract new investment (also noting some higher risk investors have made new investment decisions in the expectation that reliability settings will need to evolve to remunerate the changing plant mix).

While the Panel's decision should be guided by the modelling, ENGIE considers that market trends indicate a higher rather than lower MPC is likely to be most appropriate. Further, since any material increase is likely to be introduced progressively (whether or not that is necessary), the Panel should be sure to be avoid being caught behind the curve if modelling indicates upward pressure on the equilibrium MPC.

Conversely, since industry is not expecting the potential capacity mechanism to represent a major new revenue stream, but rather to complement the EOM¹, there is no case for a decrease in the MPC.

Additionally, the RRO, which is a possible blueprint for the capacity mechanism has yet to complete a full compliance cycle, i.e., we don't yet know how effective it is, or what – if any – the shadow price of capacity it represents. Thus reducing the MPC before the market has had time to understand the implications of the existing capacity mechanism would seriously undermine investor confidence in the NEM.

Further, should any external interventions or a capacity mechanism reduce the need to increase the MPC over the longer term to meet the reliability standard, this of itself not reason to decrease the MPC or in fact to not increase it as part of this review. This is because any reduce instances of volatility will be more important to the market when such a capacity mechanism is in place and thus allowing the MPC to be reached becomes just as important. The fact MPC may be reached more rarely does not require a lower MPC unless the purchase of a lower MPC is optics and not market performance.

¹ It is worth remembering that a properly designed EOM or capacity market, or combination of both, should provide the equivalent financial outcomes for investors and risk returns. This is both a function of design but also a fact that increased capacity naturally suppresses energy prices and thus increased capacity ultimately suppresses capacity prices until capacity exits.

Cumulative Price Threshold (CPT)

The CPT has long been set with reference to a multiple of the MPC. Currently it represents 7.5 hours of prices at the MPC, although since it is measured over a week, it could be triggered by a shorter period of MPC pricing plus other non-zero price intervals. ENGIE recognises that the CPT serves a purpose. In certain highly extreme circumstances, a price cap may cease to function as a useful signal for supply to come online and become simply a cost burden on consumers (or generators unable to defend a hedging contract).

An example of this is the Texan energy crisis of 2021 where the MPC persisted for 72 hours because they had no CPT. This outcome then perversely triggered a lower MPC for the rest of the year, creating the risk of inadequate price signals to meet summer peak demand.

ENGIE and others have consistently argued that the CPT should be decoupled from the MPC. The panel should consider how a CPT (or similar backstop for extreme prices) can be designed to be compatible with reliability requirements during renewable droughts and measured against market participants' financial resilience so as to avoid cascading default (which was previously discussed in an earlier AEMC review).

Market Price Floor (MPF)

The Panel's goal for the MPF is to set it at a level at which allows the market to clear in most circumstances. The current MPF of $-\$1,000/\text{MWh}$ is self-evidently a strong incentive not to be dispatched. This incentive was arguably undermined under 30-minute settlement when a high price event early in the settlement period induced price floor bidding from generators in order to get dispatched and capture the average price for the half-hour. The move to five-minute settlement last year appears to have successfully ruled out this disorderly "race to the floor", and very low prices have been rare since its implementation. There are two types of generation that might bid (and thus wish to be dispatched) at heavily negative prices:

- Utility-scale renewables operating under a PPA that pays a fixed price for all output. Newer PPAs typically include a clause that they don't pay out at negative prices. So, the quantity of plant bidding in this way is unlikely to grow and will likely shrink as older PPAs expire, and new ones are renegotiated.
- Thermal plants (primarily coal) for whom the costs and risks of shutting down to avoid dispatch are sufficiently high to outweigh the cost of dispatching at negative prices. If operating under swap contracts, the effective cost is the plant's underlying short-run marginal cost (SRMC) – mostly its fuel cost. No-one is seriously expecting that new plants of this type will be built in the NEM, and the closure timetable is accelerating. So, the quantity of this type of plant will also shrink over time.

As the panel notes, minimum demand events are a security rather than a reliability issue, and they are caused by price-insensitive rooftop solar. So, the MPF is not a solution to these events.

With these trends in mind, the Panel should consider increasing the level of the MPF (i.e., to a less negative figure). The market will still typically clear, but the absence of very low negative prices may assist the transition. ENGIE sees no pressing need for an alternative price and consequently does not support indexation.

Administered Price Cap (APC)

The APC has been set at \$300/MWh since 2008/09. It is believed to have been set at this level to broadly reflect the SRMC of a gas generator at the time. Gas prices have become higher on average and more volatile, and so this level is unlikely to be reflective of the marginal cost of new generation at times of supply scarcity. ENGIE recognises that lower cost supply in the form of Li-ion batteries is emerging but given that the APC will be applied in periods of persistent scarcity, battery cost may not be a relevant reference point for this setting. The Panel should give consideration to both a one-off increase and ongoing indexation of this price.

Modelling

Modelling power system and market dynamics is an important input to the Panel's deliberations. Of course, the utility of modelling is dependent on the quality of its underlying assumptions. The Panel should satisfy itself that the modelling supports the identification of effective EOM reliability settings based on revenue adequacy for new entrants. In this respect, industry input to modelling parameters will be invaluable. The work of the ESB to date on a capacity mechanism, and the National Cabinet's design principles, suggest that the mechanism will be complementary to the EOM, rather than supplanting it as the driver of investment. This makes the cost of new entry (CONE) an important input assumption and multiple sensitivities should be included.

While the Panel's overall approach should be technology-neutral, it should also be realistic about the emergence of new technology over the six-year horizon from today to 2028. The marginal response to scarcity signals is ultimately likely to come from lithium-ion batteries, gas peaking plant (reciprocating engine or gas turbine) or hydro plant. Hydro costs are bespoke, and so caution should be taken in relying on generic capital or levelized cost figures. Batteries are highly flexible and may well be the "first responders" to scarcity signals but have limited duration at full discharge rates. Gas plant can offer longer duration output, but gas prices are volatile and so undue reliance should not be placed on a single gas price forecast in determining CONE for a gas plant.

Modelling outcomes may also be sensitive to assumptions about bidding strategies. ENGIE has over the course of multiple reviews expressed concerns about assumptions that peaking plant will bid in "cap defender" mode². Portfolios are changing rapidly with corporate restructures/takeovers and coal plant closures and so the Panel should also be cautious about how the modelling reflects portfolio optimisation. Storage operators do not have perfect foresight and their bidding strategies are evolving, while auto-bidders are becoming more common for renewables.

Modelling should be highly granular (i.e., five-minute modelling should be included) to test the ability of the system to respond rapidly (ramp up/down) to sudden changes in demand, renewable availability, and unplanned outages of ageing thermal plant.

² See for example [our submission \(as GDF Suez\) to the 2014 review draft report](#)

Overall, the modelling and its evaluation by the panel should be appropriately conservative in the face of the multiple uncertainties the NEM is facing. Noting the modelling focus is on a relatively short time horizon, there is nonetheless a veritable shopping list of unknowns that could have a material impact. Examples of these include (but are not limited to): coal plant retirement dates, the level of activity under the wholesale demand response mechanism, and the penetration and charging patterns of electric vehicles. ENGIE recognizes there are only so many scenarios and sensitivities that the Panel can include in the modelling, which in itself is a reason to choose those that appropriately “stress-test” the standard and the settings.

Should you have any queries in relation to this submission please do not hesitate to contact me on, telephone, (03) 9617 8415.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'J. Lowe', is positioned below the text 'Yours sincerely,'.

Jamie Lowe

Head of Regulation,

Compliance, and Sustainability

Reliability interventions

- The introduction of an additional reliability mechanism in the form of the Retailer Reliability Obligation (RRO)
- The introduction of a new, ostensibly temporary, interim reliability measure outside of this periodic review process
- The expansion of the RERT to meet the new interim reliability standard, and its periodic deployment over the last five summers
- The development of a potential capacity mechanism, which is taking place in parallel with this review
- New requirements on major power stations to provide over three and a half years' notice of closure
- Direct government support for dispatchable capacity (in addition to the existing trend of support for renewables), such as the Underwriting New Generation investment (UNGI) scheme and the NSW infrastructure roadmap, which contains initiatives for supporting investment in eight-hour storage and firming capacity. Pumped hydro projects in NSW and Queensland have also benefited from various forms of support.

Operational challenges

- An unprecedented level of use of directions, albeit mostly for system security rather than reliability
- Record levels of low operating reserve in 2020/21
- The emergence of rooftop solar as the “largest generator in the NEM” – critically this resource is not directly controllable by or visible to the market operator and is insensitive to wholesale price signals.
- Increasing requirements for ramping capability to match the withdrawal of weather-dependent renewables output.
- An increase in system security challenges. This is expected to result in new system services markets. However, as with the proposed capacity mechanism, the Panel is unable to put undue weight on the potential impacts of these markets, including their contribution to revenue adequacy for new entrants.

Other impacts

- The introduction of five-minute settlement
- The development of the Integrated System Plan (ISP) and consequent proposals for significant interconnection upgrades. The first major project from the ISP, the NSW-South Australia interconnector (Project EnergyConnect) is expected to have a material impact on the South Australian plant mix.