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Enhanced Reliability and Emergency Reserve Trader Rule Change

The Australian Energy Council (AEC) welcomes the opportunity to make a submission to the ERC0237: Enhanced Reliability and Emergency Reserve Trader (RERT) Rule Change.

The Energy Council is the industry body representing 21 electricity and downstream natural gas businesses operating in the competitive wholesale and retail energy markets. These businesses collectively generate the overwhelming majority of electricity in Australia and sell gas and electricity to over 10 million homes and businesses.

Recently the long-notice RERT (ERC0238) was re-instated. The AEC does not support this additional proposed rule change. Our greatest concerns relate to longer-term contracting and proposals to engage RERT reserves on a different basis than the Market Reliability Standard. These aspects potentially:

- increase the distortionary aspects of the RERT on the energy market,
- lead to the RERT becoming a permanent alternative market to the energy market,
- create inefficient consumer costs, and
- confuse the governance and implementation of the NEM's reliability standard.

The existing RERT, with up to nine months' lead time, is also capable of performing the role of the proposed National Energy Guarantee Procurer of Last Resort.

The AEC supports several suggestions in the Commission's Consultation Paper regarding greater transparency of the existing RERT and placing greater clarity in the Rules regarding the circumstances where AEMO may engage the RERT. As an improved rule, the AEC supports these aspects only.

Please find attached detailed responses to the Consultation Paper.

Any questions about our submission should be addressed to ben.skinner@energycouncil.com.au or by telephone on (03) 9205 3116.

Yours sincerely,

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Context of the enhanced RERT rule change

Since the start of the NEM, discussions have frequently revisited the case for the RERT's existence. Whilst economic purists generally argue that it should be entirely the role of the energy-only market to deliver an economic level of bulk supply reliability to customers, the RERT has remained in place as a pragmatic safety net to satisfy concerned stakeholders. If, for whatever reason, the market fails to provide the desired level of reliability, there remains this form of central intervention available to back up the market.

Thus this construct existed purely as a form of last-resort intervention that, presuming energy market settings are correct, should never, or only very sparingly, be used. The design was focussed more on ensuring it did not distort the market, for example by requiring it was only used at the latest possible moment, rather than providing the market operator with a wide range of intervention options. Indeed, low cost was to be achieved not through the market operator's efficient purchasing, but by minimising the circumstances in which it would be used.

For the NEM's first 18 summers, the RERT performed to this design. It was contracted only three times, for a combined cost of less than $5 million. However the actions taken in the lead up to and during the summer of 2017/18 changed the significance of the RERT in each of:

- cost to the consumer, where in one summer RERT costs accumulated to nearly ten times all the previous 18 summers combined;
- activation of RERT contracts whilst in-market capacity remained undispatched;
- distortion to the energy market, where reserve providers have been encouraged to see the RERT as a legitimate alternative market for their products; and
- stakeholder expectations, who now see central intervention, rather than market settings, as the primary means by which customer reliability is assured.

All of the above occurred in a summer where forecasts suggested the reliability standard would be either just met or very marginally violated. Indeed the reliability outlooks leading up to the summers of 2004/5, 2005/6 and 2008/9 – for which only the first two the market operator intervened - were more adverse.

This dramatic change in role for the RERT has occurred within the existing rules, which confirms concerns raised in previous considerations of the RERT about the (then unrealised) potential for it to evolve into a serious market distortion. The events of 2017/18 should be leading the Commission to revisit the risks to customers and the market presented by the existing RERT. Instead it is contemplating a rule change that entrenches it and potentially increases its costs and distortions further.

Whilst the AEC does not support AEMO's enhanced RERT rule change, several suggestions of the Commission that relate to limiting the over-use of the existing RERT in circumstances similar to 2017/18 are supported. The AEC recommends the Commission progress only these aspects as part of any improved rule change.

Response to Questions 1-12

Question 1 Assessment framework

(a) Is the assessment framework appropriate for considering the changes proposed in the rule change request?

(b) Are there any other relevant considerations that should be included in the assessment framework?

The AEC supports the proposed assessment framework. A further relevant consideration is clarity of institutional responsibilities, particularly between AEMO and the Reliability Panel.

Question 2 Procurement lead time

(a) What are stakeholders' views on increasing the procurement lead time from nine months to one year?

(b) Is one year an appropriate lead time? What are the pros and cons of a longer lead time?

The AEC opposed the recent reinstatement of the long-notice RERT on the basis that:

- Earlier intervention by the market operator necessarily increases the level of market distortion, primarily through the market operator engaging reserves ahead of the market; and
- Recent activations of short and medium notice RERT have shown that, as a last resort, considerable reserve volumes can be procured on short notice.

Whilst the AEC was unsuccessful in prosecuting these arguments with respect to containing intervention to 10 weeks, the same concerns are amplified with an extension from 9 to 12 months.

In its submission to the National Energy Guarantee (NEG) consultation, the AEC supported using the RERT mechanism as the Procurer of Last Resort. However we noted that whilst the "T-1" obligations were triggered 12 months ahead of a forecast shortfall, this did not necessitate that the RERT procurement limit be extended from nine months. The limit applies only to the *execution* of RERT contracts, not to any preliminary discussions and negotiations.

Under the NEG draft design, the identification of a forecast below the reliability standard in 12 months' time is only the start of a process. After that, AEMO must justify to the independent reviewer its expectation of a shortfall. This would be expected to take at least several weeks.

If confirmed, AEMO would then need to advertise and seek tenders for RERT provision. It would be expected that this should take at least a month to allow tenderers to present and price their offers. After that, AEMO would need to assess, negotiate and potentially verify the offers it has received.

The processes described above would be expected to take at least three months, so the nine month execution limit will not bind. Indeed it would be good practice to ensure that AEMO did not commit customer funds to the RERT until at least 3 months after the T-1 moment to ensure it both had access to the latest reliability information – such as the market responding to the shortfall – and to ensure it reasonably explored RERT providers.

Question 3 Multi-year contracting

(a) Is multi-year contracting appropriate?

(b) If so, is a three-year outlook an appropriate duration?

The AEC does not support the concept of multi-year contracting which extends the RERT beyond being a safety net into another concept closer to standing reserve. Such an approach would clearly draw reserves away from the energy contracting market as it would present an alternative stable long-term income stream.

AEMO is quite correct in suggesting this could lead to lower price RERT contracting than contracting one year at a time, a statement which in itself exposes the dangers of such an approach. The cheaper price arises because providers would see the RERT as a long-term alternative market. As a result customers, via the market operator, would be absorbing the proponents' investment risks rather than the investors themselves, and, if conditions ease in subsequent years, customers would be funding larger RERT costs

than if it were purchased short-term. This transfer of risk from investors to customers runs counter to the original rationale of having electricity markets.

If the RERT regime is seen only as a last resort safety-net, then purchasing efficiency is very much a secondary concern. The design instead should primarily focus on two far more important, and connected, objectives:

- ensuring the safety net is used only in cases of genuine market failure, and
- ensuring it does not undermine the market it seeks to protect.

In seeking to optimise the RERT against a secondary concern, AEMO's proposal violates the two primary concerns and will increase total long-term costs for consumers.

The better way to limit the cost of the RERT for customers is to limit its use by doing everything necessary to encourage the energy market to deliver the reliability standard without intervention. Committing to an intervention that extends years into the future, during which time there is clearly time for the market failure to resolve, is an evident false economy.

Question 4 Operationalisation of the reliability standard

Do stakeholders have views on how the reliability standard is operationalised, including on the approaches described above?

AEMO has characterised a difference in its approach to long and short notice interventions as the former targeting the reliability standard whilst the latter targets zero Unserved Energy (USE). This latter description is a mischaracterisation of power system operating practice.

When forecasting a power system beyond a very short time horizon, the reliability conditions are appropriately calculated *probabilistically*, as the operator has insufficient information about future conditions to presume any inputs as fixed, particularly weather. Often an explicit USE target is chosen.

In the very short-term horizon however, the operator does have the benefit of considerably less uncertain information. This allows the operator to simplify the forecasting process with *deterministic* techniques, and some inputs such as weather forecasts and plant conditions are taken as fixed. However these deterministic approaches always then apply a finite reserve margin, often linked to a specific event, such as one credible contingency. The choice of the credible event and subsequent reserve margin is simply another way of expressing a probabilistic tolerance to a finite quantity of USE. Operators don't, for example, allow for a reserve margin for many credible contingencies which would target an ever smaller, but never zero, tolerance for USE. The reserve margins used in deterministic assessments, for which one example is the NEM's defined range of credible contingencies expressed in the Lack of Reserve criteria, have their historic origin in an economic trade off of cost versus probability of USE.

Thus, no power system operator targets zero USE in any timeframe, even if they are not doing it explicitly. In AEMO's case however, it has recently evolved its operational timeframe intervention system into an explicitly probabilistic tool. In its own procedures, AEMO notes that this operational tool is targeting a finite probability of USE. It is trained to explicitly identify a probability of a supply inadequacy of between 2 - 5% and no less[1].

AEMO's confusion on this key matter reveals there is a case for the Reliability Panel to provide greater guidance regarding implementation of the Reliability Standard. Presently the Panel only provides an annual USE target and leaves it to AEMO to put into operation. This is readily achieved in annualised forecasts, such as the Electricity Statement of Opportunities, but requires additional interpretation when using tools that forecast over periods shorter than one year.

[1] http://www.aemo.com.au/-/media/Files/Stakeholder_Consultation/Consultations/Electricity_Consultations/2017/Reserve-Level/LOR-Reserve-Level-Declaration-Guidelines-Final-V10.docx Appendix B

Using sophisticated statistical techniques, it should be possible to determine a relevant fraction of the annual USE target than can be tolerated in a specific sub-annual horizon.

It appears to have become necessary for the Reliability Panel to calculate and set shorter horizon USE targets using a technique such as that described above which should avoid misunderstandings about targeting zero USE in some timeframes: an impossibility.

Question 5 Appropriateness of the reliability standard

(a) Do stakeholders consider that the current reliability standard remains appropriate?

(b) If the current reliability standard is considered appropriate, is there evidence that a tighter reliability standard is needed, i.e. one which allows less tolerance for unserved energy?

The Reliability Panel has an on-going process for periodically reviewing and setting the Reliability Standard. As such, question 5(a) should be dealt with there and is outside the scope of this rule change.

The AEC notes however that the current standard has been determined as an economic balance between the cost of supply and the value of customer reliability (VCR), and, when reviewed previously, has been repeatedly found to be fairly close to optimum.

Claims that it should be adjusted in light of peaky supply-demand conditions are incorrect. Firstly the NEM has always had needle peak demands, and secondly, this shape of the demand trace does not result in the optimal trade-off of moving to a lower USE target. In fact, if the shape makes the peak more expensive to supply, the economically optimum USE would be expected to increase, rather than reduce.

Claims that reliability is now of higher concern to customers must be empirically demonstrated. This is done through a careful process of identifying the Value of Customer Reliability (VCR). AEMO last performed this task in 2014[2], and found it to not be substantially different (in real terms) from earlier, less thorough studies. This will be performed again by the AER in 2019 which will provide further empirical evidence.

The NEM's reliability forecast has always drawn widespread public interest. This is precisely the reason why an economically derived standard is so critical to the industry. Such a standard allows our institutions and network planners to step above ill-considered public commentary and make the best judgements in the long-term interests of customers. And, when customer interruptions do occur, it provides the institutions with an empirical basis to help explain the events.

AEMO notes that on occasions state governments have behaved in a way that suggests they are prepared to only tolerate an amount of USE lower than 0.002%[3], and have invested in additional reserves outside the market to achieve it. Unsurprisingly such actions are not economically efficient[4]. The appropriate way to deal with this challenge is through education about the trade-offs of supply cost versus VCR, rather than consolidating the error at institutional level.

In any case, the two examples cited do not appear to be driven by governments explicitly attempting to implement a more conservative reliability standard. In both cases, the jurisdictions had recently experienced customer interruptions that the Reliability Panel has determined to not be reliability interruptions, i.e. the governments were reacting to events unrelated to the standard. Thus, had a tighter reliability standard been in place, there is no reason to expect the same non-reliability events would not have occurred, followed by the same jurisdictional actions.

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[2] http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Planning-and-forecasting/Value-of-Customer-Reliability-review

[3] AEMO rule change proposal page 6.

[4] See https://www.energycouncil.com.au/media/11669/20180206-sa-energy-plan-review-final.pdf

Question 6 Alternatives to the reliability standard metric

(a) Should the Commission consider alternative metrics, i.e. metrics other than the current reliability standard metric such as the loss of load probability? If so, which metrics should the Commission be assessing?

(b) If a different metric(s) is considered, should this metric(s):

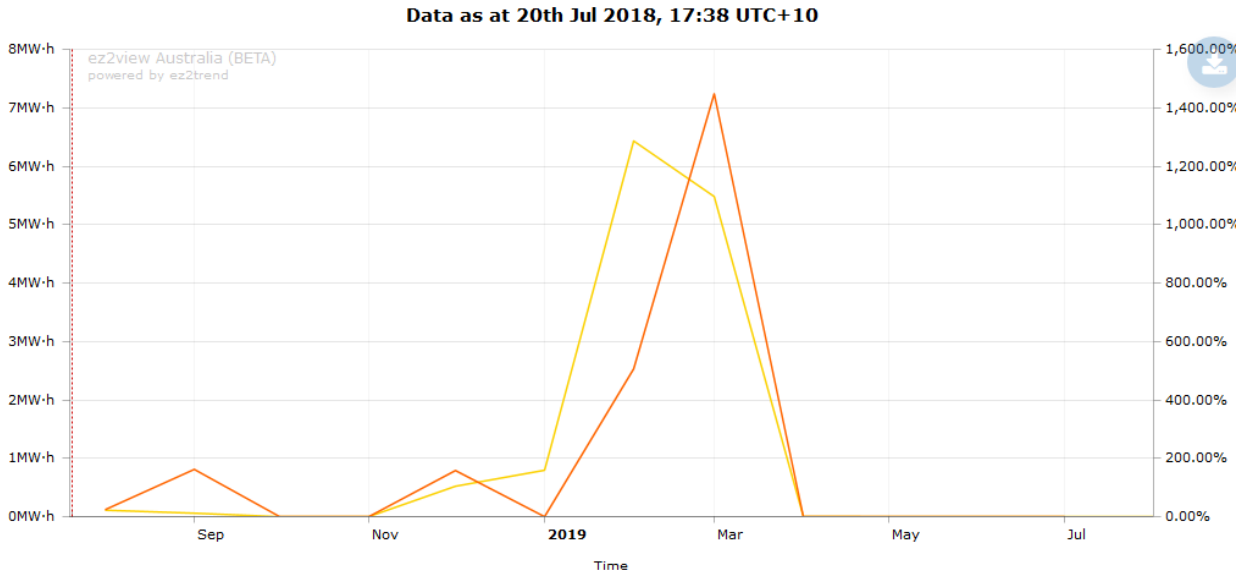
(1) replace the reliability standard and therefore apply to the entire reliability framework; or

(2) apply in addition to the current metric; or

(3) apply only to the RERT trigger, which would in effect, create a second standard, with the existing reliability standard intact?

Other reliability metrics, such as Loss of Load Probability (LoLP), are simply different ways of finding the economically optimal trade-off between the cost of supply and VCR. These metrics are produced as an output of the same tools that produce a USE output, and for a given power system, these metrics can be tuned to violate in effectively the same conditions.

Take for example the following graph of the present MTPASA probabilistic outputs for the South Australian region. The orange trace is the LoLP and the red trace the total USE from the 50% demand curve. As can be seen, they track nearly parallel to each other. This suggests that if the metrics were targeting a similar economic optimum, they would probably trigger in similar conditions. If not, it would imply one was targeting a different economic objective.



There is no particular advantage, from the customer's perspective, of using an alternative metric to the USE standard. Whilst LoLP is a valid metric that is used in some power systems, when compared against USE, the metric has the disadvantage of identifying only the number of simulation runs that experience USE, without identifying the volume of the USE in those simulations. Indeed as supply-demand conditions get peakier, an LoLP metric tends to be less conservative, as customer interruption events tend to be rarer, thereby appearing in fewer simulations, but their extent becomes progressively more severe. A USE metric however is effectively the product of the probability of interruption events multiplied by their severities.

The Consultation Paper has correctly recounted the Reliability Panel's previous investigation of a hybrid standard, which concluded that the standard would effectively become the more conservative of the two. A great danger of introducing a new standard at this time is that it may effectively set a more conservative

standard for the NEM without being first subject to the proper economic scrutiny that might occur if the existing metric were adjusted.

Having determined the metric and optimal standard, it needs to apply equally to all aspects of the market. It would be foolish, for example, to determine market settings upon one standard and interventions upon another.

Question 7 Power system security trigger

(a)Does it continue to be appropriate for AEMO to have the discretion to use the RERT for power system security?

(b) What effect would changes to the procurement trigger or other changes being considered through this rule change have on this aspect of the framework?

For those necessary power system security services that are not priced into the energy market, over the long-term these are procured through the ancillary services markets (both existing and future) and the declaration of ancillary services gaps to network companies. In the short-term, AEMO manages security through managing the network, imposing constraints on the dispatch process and operating the ancillary services markets. If these fail, it also has its 4.8.9 Instruction and Direction powers.

This suite of options means that it seems very unlikely that RERT services will be procured purely for a system security reason. It is slightly more likely that a RERT provider, procured for reliability purposes, may be subsequently dispatched for system security. Whilst only a theoretical possibility, the circumstance does not seem problematic.

Question 8 Linking the procurement trigger to a reliable operating state

(a) What are stakeholders' views on whether the procurement trigger for the RERT should be linked to a reliable operating state?

(b) What are stakeholders' views on whether having linking the procurement trigger for the RERT to the reliability standard creates potential inefficiencies?

The RERT should only be procured in order to restore the power system to the Reliability Standard. This is the intent of the existing arrangement. The events of 2017/18 suggest however the rules need to make this linkage more explicit. Whilst the trigger should be based on a forecast violation of the standard, the rules should explicitly limit AEMO's procurement to the point where the standard is met, and no further.

AEMO's rule change proposal seems to indicate a degree of confusion in the interpretation of the *Reliable Operating State* (ROS) definition. In the AEC's reading, the definition only allows for certainties with respect to present and past timeframes. With respect to any future timeframe, there are only two relevant criteria:

- "expect" which implies a reasonable probability (i.e. neither 100% nor 0%); and
- meeting the Reliability Standard.

Neither of the above suggests that a non-zero probability of USE at a time in the future implies that the system is outside a ROS. As no power system ever has a zero probability of USE in any future timeframe, no other interpretation makes sense.

With respect to interpreting the probability implied by "*expect*", for long-term forecasting it seems clear that the Reliability Standard is what AEMO should follow. In the shorter-term, there is no clear Reliability Standard, but AEMO's practices are still based on probabilities of USE rather than certainties. The only difference seems to relate to who is setting the probabilities.

LOR2 has always been an implicitly (and now explicitly) probabilistic short-term forecasting signal. It forecasts a non-remote probability of the system departing from a reliable operating state (i.e. load shedding) in the near future. It is useful as a warning to the market, and also to ready AEMO's preparation for intervention. Intervention does not happen automatically upon an LOR2 declaration, but, should it persist, at the last available moment before expiry of the intervention option's activation time.

Therefore linking the procurement trigger to the ROS should not actually alter the way RERT is procured, assuming the ROS is correctly interpreted. Procurement should always be linked to the Reliability Standard. As discussed at Question 4, the Reliability Panel could assist AEMO by providing clearer interpretations of the Reliability Standard that can be used in forecasts with shorter horizons than one year. This would:

- remove the confusion that seems to pervade this issue;
- ensure the RERT was used only in relation to the optimal economic level of reliability for customers; and
- create a clearer governance structure over in what conditions market intervention would occur.

Question 9 Procurement volume

(a) Should the NER be more prescriptive with respect to procurement volume?

(b) Do stakeholders consider that the current procurement volume is sufficiently transparent? If not, how could transparency be achieved?

(c) What is the most appropriate link between the procurement trigger and procurement volume?

Question 10 Options for determining procurement volume

Do stakeholders have any views on the outlined options?

As discussed in Question 8, the NER should clarify that the procurement volume must be limited to meeting, and only meeting, the Reliability Standard.

Whilst AEC appreciates the Victorian Government's desire for the procurement to be simpler, the suggestion of requiring a capacity volume is however not realistic. The sources of reserves that RERT procures have quite non-standard characteristics. For example they will always have a finite probability of availability that have a more stochastic character than traditional generation options. Also they commonly have an energy limitation which can affect their value to USE. And finally, reserves can often be purchased from multiple regions that can assist in reducing USE, but not always to exactly the same amount.

Thus individual reserves cannot be directly compared against each other on a "$ per MW" basis. The actual procurement process is necessarily a complex probabilistic exercise as reserves that are made available at tender are included in a simulation run and the USE output observed to progressively decline.

There is a danger that in attempting to standardise purchase arrangements to some kind of "$ per MW" standard that AEMO inadvertently rules out technologies and fails to find the least cost procurement.

Question 11 Standardisation of products

Should there be a high-level framework in the NER for standardised products? If so, what should this framework look like?

The AEC understands the desire for AEMO to simplify the purchasing process. This is largely a matter for AEMO's own procedures rather than the NER, however the AEC makes the following observations:

- Standardisation of products is potentially disadvantageous for the RERT, as by design we expect the technologies to be those from outside of the normal market. As such they are likely to not readily comparable on a deterministic MW volume basis. Nor are they likely to fit neatly into a procurement design that had been developed before the relevant technology arose. See also the discussion above in response to Q9 & 10.

- The RERT is intended to be used as a last-resort mechanism in cases where the market has observably failed. As discussed earlier, the RERT was hardly exercised for the first 18 years of the market and current reliability outlooks suggest the standard will be met almost entirely through the planning horizon. It seems unnecessary to invest resources into a procurement process that will hopefully be never, or almost never, used in the future.

- Creating a RERT standardisation process will distract market providers into designing offerings to meet these parameters when the industry needs them to focus on participating in the market itself.

Question 12 Governance and transparency of the RERT

(a) Is the current governance framework appropriate? Is there a need for independent oversight of the procurement trigger for the RERT?

(b) Do stakeholders agree that there should be more transparency around the identified aspects of the RERT framework?

The AEC supports all the suggestions in the Consultation Paper regarding improving RERT transparency. The most critical matters we suggest need to be incorporated are:

- Clarifying that AEMO is to invoke the RERT in order to meet, and only meet, the Reliability Standard.

- Clarification from the Reliability Panel as to how AEMO should interpret the Reliability Standard in forecasts with shorter horizons than one year.

- Transparency in the assessment of reserve requirements with enough information provided to parties to potentially challenge AEMO's decisions if it has either purchased excessive reserves or has not purchased the least cost reserves.

AEMO presently has an obligation to report on total costs of the RERT. The AEC suggests this could extend to the costs and characteristics of individual providers. Normally such information is confidential, which is appropriate for options acting within the market, but if a provider has chosen to not participate in the market and be involved in an intervention, then there is no necessity to protect confidentiality. Instead, it should be a necessity of participating in this intervention process that all such information is revealed. Exposure should not have anti-competitive tendering effects, since unlike, say, ancillary services markets, the RERT is not intended to be a routinely repeating exercise.

Questions 13 – 18

The design, specification and dispatch matters discussed in these questions appear to all be matters for AEMO's RERT procedures. The AEC observes that AEMO has undertaken a great deal of theoretical design development for what is intended to be a rarely exercised safety net, which seems to indicate that AEMO anticipates using the RERT regularly in the future. If the constraints upon AEMO's exercise of the RERT discussed at Question 8 are implemented, then the RERT should revert to its historically low level of operation. If this is the case then it does not seem a worthwhile investment to set up these levels of sophistication in RERT operation.

In short, there are many more critical matters in the NEM at present that require AEMO's attention.

With respect to the provision of RERT from prescribed network technologies, this does pose well-known challenges regarding the boundary of regulated and competitive services. If they are genuinely additional to the market, then it seems AEMO cannot exclude them. Instead perhaps the better approach is to refer this matter to the AER and its ring-fencing arrangements surrounding the separation of prescribed and competitive services. The AEC's suggestion of transparency in the details of actual providers would assist this process through revealing to the AER what revenues are being derived from the participation of prescribed assets in competitive markets.