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Australian Energy Council submission to Enhanced RERT Options Paper (ERC0237)

The Australian Energy Council (AEC) welcomes the opportunity to make a submission to the *Options Paper on the Enhancement to the Reliability and Emergency Reserve Trader (RERT)* rule change.

The Energy Council is the industry body representing 23 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.

Introduction

The AEC does not support the Australian Energy Market Operator's (AEMO) proposal to significantly increase the scale and scope of the RERT, and we submitted this view to the Consultation paper in July. We also opposed the re-introduction of the long-notice RERT. The AEC considers that the reliability¹ concerns are overstated and conditions do not necessitate the additional market distortions created by an expansion of the RERT's role. Furthermore, in the unfortunate event of a reliability shortfall – controlled rotational load-shedding of a limited amount of customers using a priority list – the actual community impacts appear to be greatly exaggerated.

The AEC appreciates the AEMC's methodical and consultative approach and has participated in the Technical Working Group. As a result the Options Paper contemplates a range of possible constructive reforms to the existing RERT that the AEC could support. In particular Option Three includes several attractive features absent from current arrangements. The constraints on excessive use of the RERT proposed within Option One would also be beneficial, and, subject to that constraint, the economic valuation of RERT proposed within Option Two could also be used.

Discussion

Question 1: Appropriateness of the Reliability Standard

As discussed in our July submission, the AEC supports the current form and level of the reliability standard. An economic standard based on unserved energy (USE) best represents the true economic impact of reliability load shedding, and presents a good benchmark to ensure the industry does not invest in reliability beyond an economically rational level. Other metrics tend to be inferior and run the risk of confusing stakeholders.

For example with respect to "loss of load probability" (LoLP):

¹ Note this comment refers only to reliability, not security concerns – a matter not addressed by the RERT.

- As discussed in our previous submission, this can be a workable metric if used correctly. It is however somewhat inferior as it only advises on the probability of occurrence, whereas the key concern is the total amount of customer inconvenience which USE explicitly assesses.
- A key risk is that the presentation of an LoLP can easily exaggerate risks for lay stakeholders. A “33% LOLP” is easily misinterpreted as a one in three risk of disaster, even if the amount of USE in those scenarios is trivial.

The form and level of the standard has been assessed and reaffirmed many times previously. Whilst the AEC does not consider there is a case to revisit it, the methodical approach proposed by the AEMC to undertake another assessment is supported.

In response to AEMO’s 29 November 2018 submission that the Reliability Standard is inadequate as it:

- Relies on AEMO’s own Value of Customer Reliability (VCR) estimate which it now considers low.

AEMO’s 2014 survey was considerably more extensive than any previously undertaken, yet produced an outcome broadly consistent with simpler assessments done previously. In addition, it pre-empts work currently being done by the Australian Energy Regulator to determine the values of customer reliability, and the most appropriate methodology to do so.²

- Implies that the VCR of customers affected by reliability load shedding is greater than the average assessed by the survey process.

In fact reliability load shedding occurs through controlled rotational load shedding focussed on the least sensitive customers, with the majority of load shedding energy in the NEM to date being brief interruptions to aluminium smelting. And, by limiting the rotations to 40-60 minutes, safety of personnel and equipment is maintained. Thus, the true VCR of reliability load shedding is considerably *less* than average VCR.

- Fails to consider the insurance value of the RERT representing human risk-aversion.

This mischaracterises the nature of Reliability Shortfall. Risk-aversion bias is relevant to a risk of catastrophic failure, such as might happen in a property fire. However a controlled rotational-load shedding event is not of this nature. Instead progressively increasing USE can cause only a progressive increase in customer inconvenience and does not incorporate any point of disaster. For example, a trivial USE event such as a few minutes interruption to a smelter potline is clearly not an event to which it would be rational to pay an insurance premium to avoid.

Question 2: Option 1

The AEC understands this option is most similar to *status quo*, in that AEMO will have the right to invoke the RERT once it self-determines that a forecast breaches the standard, but AEMO will now be explicitly restricted in purchasing RERT of greater quantity than that needed to just meet the standard.

This was proposed in the AEC’s July submission and remains supported.

Whilst an explicit direction from the Rules would be helpful, the actual operationalisation of the standard and the RERT will remain very much the responsibility of AEMO. Therefore we must recognise the limitations of the direction: if AEMO is minded to target a higher level of reliability, given the complexity of the process, it will be very difficult to ensure substantive compliance with it.

Implementing Option One seems to require removing references to jurisdictional consultations in Rule 3.20.3. Such consultations appear to conflict with the proposed constraint by suggesting AEMO and jurisdictions could

² Australian Energy Regulator, *Values of Customer Reliability Consultation Paper*, October 2018

agree on an intervention that is intentionally different to, or subtly biased away from, a rule objective of exactly meeting the reliability standard.

With respect to the argument that AEMO may need to procure above the reliability standard if its RERT providers are non-firm,³ this would be an incorrect approach. Non-firm characteristics are recognised within the modelling itself, e.g. through higher forced outage rates on those options, and that once having correctly accounted for non-firmness in that way, the final objective should still remain the standard.

The Options paper discusses the use of safety margins by AEMO and whether these should be codified in the Rules. As the calculations are probabilistic and attempting to achieve an economic trade-off, it is not clear why a safety margin is used. A safety margin is appropriate with respect to safety problems, i.e. discrete points of catastrophic failure, such as a bridge loading limit. This is relevant for calculations of power system security constraints, but not for power system reliability calculations. Levels of reliability relate only to a continuum of progressively increasing customer inconvenience rather than any specific point of failure.

Question 3: Option 2

This option would make AEMO a “smart” buyer on behalf of customers. AEMO would seek to purchase progressively increasingly expensive RERT options until it reached the point at which the cost of the RERT contracts was greater than the value of the USE it removed from the probabilistic forecast. As the reliability standard becomes irrelevant, AEMO would presumably do this in all times in all regions regardless of forecasts.

This trade-off calculation is readily achievable with monte carlo simulation, and was indeed once performed by NEMMCO when it used the same technique to *reject* RERT offers that were more expensive than the economic value of meeting the reliability standard.

The AEC understands the economic rationale for such a design which would be entirely appropriate if AEMO’s purchase of reserves were the only way in which customer reliability was obtained. Indeed some centralised capacity mechanisms apply similar concepts, such as the Western Australian Wholesale Electricity Market (WEM) Capacity Mechanism which is implementing a “sloping demand curve” – which means the actual reliability outcomes for customers will be affected by the price of capacity offers.

But despite the strong economic basis for these approaches, they become problematic when considering the distortionary effects of the RERT operating alongside an energy market that delivers the vast majority of customer reliability. By introducing an effectively permanent separate market, reserve providers will be presented with an alternative to selling their capacity to Market Customers. The rational response for these providers would be to offer their services into AEMO whenever it performed these calculations, knowing that if they are rejected they could then simply move back to Market Customers. And, as the capacity is withdrawn from the Market Customer route, AEMO’s willingness to pay via the RERT route is increased.

It was the potential for this kind of distortion that led to the RERT’s original premise of being a *last-resort safety-net*, i.e. it would only reluctantly be exercised when reliability had breached a threshold of unacceptability. It was specifically *not* to be provided as a routine alternative to the energy market, regardless of whether it appeared to present good value from time to time. Indeed those same concerns led to the originally proposed short sunset of the RERT (then called “Reserve Trader”) of 1 July 2000.

For these reasons AEC does not support Option 2 as is. However the AEC does support applying this form of economic cost benefit to any reserves purchased in order to meet the reliability standard, i.e. the approach once used by NEMMCO. Thus a combination of Option 1 and 2 would be superior to Option 1 alone.

Option 2 was proposed by AEMO to the AEMC after their original Rule change proposal was submitted. It however seems to contradict the original rule change in several ways:

- The calculations required to perform the economic trade-off require a very accurate forecast which is only possible for a few months ahead. In its original rule change AEMO proposed purchasing RERT

³ Options paper end of page 43

that it considered low cost up to three years ahead. A three-year timeframe is well beyond the construction time of new market-based plant which would dramatically impact these calculations, hence it would not be possible to do this economic trade-off whilst purchasing across an extended timeframe.

- In its original rule change AEMO proposed purchasing RERT sufficient “to meet stakeholder expectations”. This implied AEMO effectively setting its own fluid reliability standard drawn from a qualitative view of the contemporary, jurisdictional tolerance of load-shedding. However Option 2 proposes an objective calculation drawn from the economic value of interruption embodied in VCR.
- In its original rule change AEMO criticised the structure of the USE based reliability standard as being inconsistent with stakeholder expectations that were argued to be affected by asymmetric tails and similar concepts. However to function effectively, Option 2 would need to value the cost of RERT against the expected USE * Value of Customer Reliability (VCR) without bias. Such an approach is consistent with the characteristics of the existing reliability standard by relying on an arithmetic mean of USE scenarios.

Question 4: Option 3

This option responds directly to the AEC’s July submission recommending greater clarity be provided by the Reliability Panel to AEMO in how to operationalise the standard, particularly with respect to sub-annual forecasts. There is considerable concern in the market as to whether the interventions AEMO is making in the short term horizons are compatible with the expectations of the annual reliability standard. This was emphasised by AEMO’s original rule change proposal that mischaracterised their operational practices as targeting zero USE; an impossibility.

This option would require the Reliability Panel to commission expert advice into what finite USE AEMO should target in weekly, monthly and multi-monthly outlooks. These sub-annual USE targets would be used by AEMO as a cap on any RERT acquisitions. The questions⁴ about lengths of time and consistency with the annual standard can be left to those experts and the Panel.

As noted above, the AEC would support a combination of Option 1 (purchases only up to the Reliability Standard-whether it be annual or sub-annual) and Option 2 (each purchase must be shown to represent positive net value). The AEC would also support Option 3 with respect to providing much more sophisticated reliability standard guidance in different timeframes. The AEC does not see the options as exclusive, and supports the implementation of elements of all three.

Additional AEMO Information “The NEM Reliability Framework” November 2018

This additional information has a number of contentions that do not appear reasonable:

- The document begins with a claim that “The risk of load shedding in the NEM is increasing...”. Yet this contradicts AEMO’s contemporary forecasts that show that the tightening of the supply/demand balance that occurred following the closures of coal plant in the first half of this decade is now loosening thanks to the substantial investments occurring in new supply, behind the meter generation, energy efficiency and transmission. It is true that most of the new generation will be intermittent, but its diversity results in a positive reliability impact.
- The absolute risk of load shedding at any time is irrelevant to the questions of the form of the reliability standard and the safety net design.
- The document speaks of “tail-risk” and insurance-theory to argue for more conservative approaches for dealing with reliability risk than responding to the arithmetic mean of reliability modelling. There is a misunderstanding of the nature of power system reliability risk. Tail-risk concepts are appropriate when contemplating exceeding a point which leads to catastrophic failure. Decreasing reserve margins

⁴ Options paper section 6.4.5

however represent only a continuum of progressively increasing levels of customer inconvenience. There is no discrete point of failure in reliability assessment. Thus it is economically appropriate to apply mitigation only to the *expected* amount of USE, and to not apply any asymmetric risk aversion. In this regard AEMO has appeared to confuse reliability with power system security where there are specific points of disaster such that risk aversion is appropriate. AEMO's presentation that provocatively analogised the RERT to purchasing house-fire insurance suffered from this misunderstanding. .

- The document claims that USE will in future inconvenience customers to a greater extent than average VCR. With respect to reliability load shedding, this is not the case. Unlike network or system security events, reliability events are managed through controlled rotational load shedding. When instructed to shed load, a network company interrupts feeders that lead their interruption tables. These tables are those pre-selected to as they supply the customers known to have the least VCR for rotational load shedding. It is likely that the majority of NEM reliability USE to date has been achieved through brief interruptions to aluminium smelting. The interruption is then rotated over 40-60 minutes to ensure that building and refrigeration temperatures are maintained at safe levels. AEMO appear to have confused the community consequences of reliability events with network or major system security events.

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

Yours sincerely,



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