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AEMC

Level 6,

201 Elizabeth Street,

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New South Wales 2000

Dear Commissioner

Re: Options Paper - Enhancement to the RERT

Flow Power appreciated the options paper (Enhancement to the Reliability and Emergency Reserve Trader) and we welcome the opportunity to provide our submission on the important matters raised therein.

We have a business model predicated on maximising consumer value through innovation and change developed through market processes. Management of electricity demand at times of high spot prices and system stress, is the most important part of this. Regulated processes that have the potential to cut across and reduce the value we (and the market) naturally provide are of central importance.

We structured our submission as follows:

- A summary of our findings;
- Our observations on the review and analysis presented in the options paper;
- We provide our view on the proposed approach to the reliability standard;
- We address the common questions posed for each of the options, listing the issues and referring to the analysis presented;

Note: References to section numbers (e.g. section 2.3) in this submission refer to sections in the options paper.

Summary

The need for and limitation of the RERT

The issues and uncertainties associated with the reliability settings and in a transforming NEM, means it is possible for the NEM to fail and have insufficient capacity to satisfy reliability needs. The RERT is needed in the NEM to support reliability in such circumstances.

The RERT is not a second order issue. It is imperative for reliability and market efficiency that the objectives and boundaries of the RERT are clear:

- The RERT is there to address reliability when the market fails to provide the level required;

- The RERT must not be used to provide economic trades AEMO might identify (such as low-cost Demand Side Response in a system that has a reliability level above that required). AEMO is not well placed to make such judgements and the NEM is full of economic trades that do not occur.

The current RERT does not satisfy the above stated objective and boundary constraint, and needs to be changed to address this design shortfall.

Issues to be clarified in the Options Paper

From insights developed though our market involvement, we noted a number of shortcomings in the options paper that are most important to properly understanding the role, limitations and operation required of the RERT. These include:

- The need to recognise and accommodate the increasing complexity of consumer preferences and the central role commercial (market) solutions have in optimising value. The RERT must be designed so it does not interfere in this domain;
- The need for proper analysis of the reliability standard. The options paper appeared to support unproven assumptions that the SA region was at, or better than, the reliability standard when a significant unserved energy event occurred in 2016/2017;
- The difficulty for AEMO (or any central body) projecting reliability accounting for generation and bulk transmission (particularly in SA, being highly reliant on interconnection);
- What the market provides through the reliability settings and how these are operationalised as follows:
  - Having enough capacity such that supply reliability is robust against unforeseen outages. The long-tern RERT addresses failure in this regard;
  - Providing incentives to maximise established capacity available when needed on the day. This is regardless of what the reliability was assessed at say 9 months prior. This is the domain of the short term RERT.

Preferred Option

Option 2 exacerbate the issues identified and is a backward step and must be avoided. Not to do so will, in our view, significantly degrade the increasing value offered through market solutions.

Option 1 addresses the issues and is preferred. It provides improved transparency in the RERT trigger and volume, designed to operate only on market failure, and to ensure the reliability standard is met.

Option 3 improves market operation by better separating market and non-market solutions. However, it may introduce risks to reliability as a result of over-specifying AEMO actions and limit AEMO flexibility as a result of unforeseen circumstances. We recommend this option be adopted after an initial (trial) period of 2 years of option 1.

RERT Payment Structure

The preferred payment structure for RERT contracts is that the major payment component is for activation, with a lower payment for availability. This is important for two reasons:

- Incentivises activation when required;
- Operates on a similar basis to the market and therefore does not establish a quasi-capacity market or present a favoured solution.

We look forward to continuing this conversation with the AEMC. If you have any further questions, please don't' hesitate to contact Liz Fletcher on liz.fletcher@flowpower.com.au

Yours sincerely,

Matthew van der Linden

CEO

Flow Power

Comments on Technical Matters presented in the Options Paper

The RERT operates within a reliability framework that includes the Value of Customer Reliability (VCR), the reliability standard, the reliability settings, and the manner AEMO operationalises the reliability standard. How the RERT should operate within this framework is fundamental to efficient market outcomes and the National Electricity Objectives (NEO).

The discussion in the options paper presented issues that in our view are not consistent with the National Electricity Objective, and not in accord with the direction the NEM is moving, this must be properly considered in the assessment of the RERT options. These matters are considered in turn below.

Reliability and the economic trade-offs

The reliability settings are intended to represent the economic trade-off between the cost of investment on the supply side (including DM) and the economic loss from supply disruption.

This economic balance of (marginal) supply costs to load interruptions is increasing in complexity.

This is due to:

- Supply costs increasing in complexity and uncertainty due to the mix of Variable Renewable Energy[1] (VRE) (in front of and behind the meter), storage, and dispatchable generation; and
- Consumers value of reliability and preference increasingly reflecting their changing interaction with the market.

The economic trade-off (as expressed through the reliability settings) must be based on:

- An efficiency assumption - supply assets are fully utilised (by AEMO) to support reliable power supply; and
- The market is unencumbered in how it clears.

Not to do the above will result in the inefficient use of resources and higher cost solutions.

This complexity also changes the required approach to assessing these issues:

- The Value of Customer Reliability (VCR) is now more dynamic and needs to account for how consumers interact with the NEM (this is something we understand well for the large business type of consumers we manage);
- The changing generation mix changes the cost profile of providing reliability and the assessment approach required on how this is determined;
- Expected USE does not identify the individual value components of the value of reliability and we think this should be considered.

Appropriateness of the Reliability Standard

As stated in the options paper, the (Reliability) Panel acknowledged the reliability standard is "a crucial market standard"[2].

Statements in Section 4.5 make explicit and implicit assumptions with regards to the appropriateness of the reliability standard based on recent experience. Section 4.5 contained the following:

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[1] This refers primarily to wind generation and solar generation.

[2] The reliability standard (of 0.002%) is based on the Value of Customer Reliability (VCR) and the cost of supply (including DM) assuming supply assets are used to their maximum.

> AEMO notes in its rule change request that the reliability standard may no longer be appropriate given changing system conditions, in particular, a more peaky system and one with more common extreme weather events. It also states that community expectations have shifted so that jurisdictional governments are unwilling to tolerate load shedding and are intervening themselves directly in the market as a result.

The first issue is that more frequent extreme events do not imply that the VCR has changed. From a reliability settings perspective they reduce the Market Price Cap (MPC) needed on the basis that the 10% MD does not increase. The cost of supply reliability may be no higher.

Secondly, the experience in South Australia (SA) (which had severe load shedding in 2016/2017) does not imply the current reliability standard is not appropriate. Such a conclusion is based on an unsupported and potentially false assumption that SA was at or better than the reliability standard (or 0.002% USE) when the load shedding occurred. This also raises the issue of AEMO's ability to assess power system reliability in a region of high VRE.

Thirdly, there is no evidence consumers are demanding a reliability level of zero load shedding. This appears to have become confused with the SA situation.

Fourth, there is a need to clearly distinguish between reliability related load shedding (that is done in a controlled manner) and security related load shedding.

Operationalising the reliability standard - RERT

AEMO do need to operationalise the reliability standard which they do through the Reliability Standard Implementation Guidelines[3] (RSIG). As described in Section 2.1.2

> The RSIG is not part of the RERT framework per se but is a core part of the reliability framework since it specifies how AEMO implements the reliability standard. As a result, the RSIG specifies how AEMO triggers the RERT in practice and in accordance with the NER.

A summary of Table 2 in the RSIG Guidelines is shown below.

PROCESS	TIME FRAME / FREQUENCY	ASSESSMENT METHOD	PRIMARY ACTION	ASSUMPTION FOR POTENTIAL BREACH OF RELIABILITY STANDARD
ESOO	10 year/Annually	USE	Inform	Forecast USE>0.002% in any forecast year
EAAP	2 year/Quarterly	USE	Inform	Forecast USE>0.002% in any forecast year
MTPASA	2 year/Weekly	Capacity	Inform	Reserves fall short of the MRL
STPASA	6 day/2 hours	Capacity	Inform	LOR2 or LOR3

As shown, unserved energy (USE) is only used for timeframes two years or more out, while a capacity criterion is used for shorter timeframes. USE is a statistical index that requires statistical / simulation modelling, while the capacity criteria moves to a security standard in the short term.

This reflects a process that has capacity secured in advance (RERT trigger) to satisfy the reliability criteria and on the day AEMO operates the system to ensure security and to provide reliability.

The assessments of reliability undertaken by AEMO and the manner AEMO operates on a day to day basis is that all available capacity would be used fully to satisfy demand. This means that:

[3] The RSIG set out how AEMO implements the reliability standard and the approach and assumptions AEMO uses to implement the reliability standard in relation to demand, generation availability, intermittent generation, energy constraints, extreme weather events, network constraints

- No mathematical link is required between the LOR framework and the reliability standard;
- If a period of LRC or LOR is identified, no assumption is required whether the reliability standard may be breached.

This reflects that on the day, AEMO will operate the system based on the conditions prevailing at the time, and this does not depend on any statistical assessment of reliability previously undertaken.

The above is consistent with the statement in Section 4.4, which reads:

> While AEMO provides information to the market based on, and operates the system with reference to the 0.002 per cent standard, in the short term AEMO pursues a 0 per cent target. That is, in its day-to day-operation of the power system AEMO seeks to 'clear the market' such that no demand goes unserved. The 0.002 per cent of unmet demand is expected to arise from contingencies such as unplanned outages.

Unfounded AEMO Concerns

The options paper presents two concerns from AEMO, which are important to the logic of the RERT, which are clearly not consistent with the above and are considered unfounded.

The first of these related to Section 2.5, which contains the following:

> AEMO considers that there is inconsistency between the operational objectives of the current RERT (meeting the reliability standard, which allows some load shedding in a financial year) and directions (maintaining a reliable operating state which implies no load shedding).

The second is found in Section 5.3.1 includes the following:

> AEMO considers that the reliability standard as the procurement trigger may be inefficient.

This statement is consistent with the current RERT and is a clear reason for the need to change the RERT. Here we note that AEMO's view expressed through this statement:

- Supports the current arrangements that allows AEMO the discretion to determine how "the reliability of supply … meets the reliability standard";
- Ignores that there are economic trades not carried out and economic trades done and not known by AEMO.

Centralist intervention

There are important issues with AEMO (i.e. centralist intervention) that need to be understood. These are the information gaps that limit AEMO's ability to properly project system reliability and the impact of market interference on market solutions.

On the first of these, AEMO (who does not interface commercially with consumers) cannot know and therefore cannot act in a manner that optimises supply risk and cost.

Further, there are great uncertainties with AEMO projecting system reliability, making such assessments not suitable for commercial decisions. This is demonstrated from the following inconsistent assessments contained in the option paper[4]:

> AEMO is concerned that its market projections indicate a heightened risk of significant load shedding over upcoming summers. In particular, AEMO's modelling highlights a heightened risk of load

[4] The options paper also stated that: The modelling conducted for the 2018 Reliability standard and settings review provided an estimate of the indicative costs associated with tightening the reliability standard. The Panel noted: The modelling indicated that the expected unserved energy under the base scenario conditions in Victoria was very low at around 0.0000003 per cent in 2020-21.

> shedding in 2018-19 and 2019-20 in Victoria and, potentially, South Australia, even when the projected unserved energy over a broad range of scenarios meets the reliability standard. (Section 2.5)
>
> The Panel restated its findings from its 2018 Reliability standard and settings review, "notwithstanding the current level of the standard, EY modelling [conducted for the Panel's review] forecasts the system will provide a level of reliability significantly better than then 0.002 per cent reliability standard in all national electricity market regions, for the review period. (Section 4.3)

On the second of these, centralist intervention will necessarily override [readily available] lower cost market solutions, to be implemented. Given the correct reliability setting the market will increasingly capture the economic balance of supply risk and cost.

Assessing the Reliability Standard

The discussion in the previous section identified important issues directly relevant to the assessment of the reliability standard. These include:

- The changing nature of consumers and the implications of this to the assessment and expression of VCR;
- The complexity of the trade-off between supply costs and unserved energy and the inadequacy of previous approaches to address this;
- The assumption that poor reliability outcomes occurred when the reliability standard was being satisfied;
- The misunderstanding AEMO appears to have regarding what the reliability standard infers when operating the system. This includes the notion that operator action can be undertaken to have the NEM satisfy the reliability standard (operator action is undertaken regardless of the standard).

From the options paper:

- It appears the main message(s) will be from the Panel and AEMO;
- These messages have the risk of not recognising the observations made in the previous section and summary above.

These matters go directly to the basis of the NEM, the value being increasingly provided by the changing nature of consumers, and how market failure should be recognised and addressed. This includes settings that provide for the market to work that are so important to facilitate innovation and least cost solutions.

This means that great care is needed in the approach undertaken to the assessment of the appropriateness of the reliability standard.

Because of this we strongly consider the following should be included in the assessment approach:

- Clear statement of RERT objectives and boundaries;
- Consumer preferences are properly accounted for, including how they interact with the NEM;
- That the operationalisation of the reliability standard in relation to AEMO actions in the various time frames is clearly delineated and understood;
- A clear differentiation is made between security load shedding and reliability load shedding;
- The limits of short-term reliability assessment are identified;
- A review is undertaken of all unsupported assumptions.

Factors influencing the RERT Options

Questions 1, 2 and 3 contained four questions to be considered and responded to as part of their consideration. This section addresses the questions as a precursor and input to the assessment of the options presented in the next section. The factors presented here are supported by the previous discussion.

Factors that promote reliability and security outcomes in the NEM

Factors important to ensuring reliable and secure outcomes include:

- Correct reliability settings (and is it not clear this has been the case in all regions);
- Use all available resources to their full capability to provide reliability;
- Unambiguous operationalising of the reliability standard (there appears to be some confusion here);
- Providing information to the market (this is done well);
- Market solutions (there appears to be distrust that this will occur);
- Minimise market distortions (these may not be evident to AEMO, but in our view are a significant by-product of central intervention);
- Avoid a quasi-capacity payment that will reduce market solutions and increase the clearing price (this does have demand arbitrage market and non-market solutions resulting in higher costs and lower reliability);
- Proper assessment of reliability – recognising the reliability levels that each region is operating at – particularly important if a region is operating below the reliability setting.

Factors that enhance the long-term interests of consumers

These include:

- Correct VCR assessment (increasingly becoming more complex and expressed through commercial arrangements);
- Accurate trade-off between the cost of capacity and the cost of unserved energy (this requires market-based solutions);
- Recognise the increasing complexity of consumer preference;
- Rules that prevent moves away from the reliability standard, either more or less, (this must be a condition in the operation of the RERT);
- One reliability standard provides for optimal outcomes and lowest cost;
- Recognise that the NEM is a market and that minimum centralist intervention is demonstrated to provide for least cost / efficient solutions;
- Accurate modelling of reliability (this is increasingly challenging);
- Absolute need not to limit innovation and change because of central intervention;
- Minimise non-market costs;
- Undertaking reviews of the cost of the RERT (the costs can be well in excess of the VCR). This is needed to review the economic assessments being undertaken and whether these need to be

improved. This is also essential to avoiding a regime where the RERT is used every or most years.

Other implications that should be accounted for when considering the options

These relate to the discussions and observations in this paper. They include:

- Transparency and unambiguity;
- Risks to the market associated with unpredictable AEMO action;
- Need to relate decisions to the reliability standard;
- Recognise that whatever reliability standard is used, it has a limited ability to measure what is required and its value in the market;
- Difficulty of modelling reliability – limited ability for AEMO to do this;
- Understand that reliability is statistical;
- Conflicts of interest / bias the system operator naturally has;
- The cost of disincentivising market solutions;
- Distinguishing between reliability and security. Here we note that transmission is the most difficult issue.

Assessment of RERT Options

Subject to the comments and issues previously presented, we present the following assessments of the three options.

Option 1

This option addresses the prime issue of transparent RERT trigger and volume designed to operate only on market failure and to provide an optimum reliability outcome.

It addressed many of the issues identified in the previous section. It satisfies:

- Reduced ambiguity;
- Increased transparency (i.e. the steps are known). This is essential given the issues with AEMO (or any central operator) undertaking reliability assessments and basing decisions that impact the NEM (and market solutions) on such assessments;
- Reduced risk to participants;
- Decisions are related to the reliability standard. Not to do so would invite sub-optimal outcomes and certainly cut across market-based solutions;
- Provides for innovation and change. Reduced risk and greater clarity of AEMO action provides for market-based solutions to be developed with greater confidence of the value and costs.

This option is a significant improvement on the current RERT.

This is the preferred option.

Option 2

This option ignores the prime issue of a transparent RERT trigger and volume by providing AEMO with vastly increased flexibility.

It disincentivises AEMO to improve and justify market reliability outlooks and confuses the basis on which it projects reliability and the basis of operating decisions.

It would also reduce the drivers and relevance the reliability settings have on market developments by virtually handing the “reliability clearing role” to AEMO.

This would also mean that the RERT could operate regardless of the market outlook with potentially high cost consequences.

As a result, this option could well result in the worst outcomes in terms of:

- Ambiguity;
- Low transparency;
- Market distortion;
- Separate regulated quasi capacity market would result (separate standard) in higher costs for market outcomes, less innovation;
- High cost solutions;
- Market frustration;
- Very poor risk / cost balance;
- Very high costs.

This option has the potential for very poor outcomes and should be rejected.

Option 3

We first note that the details for this option have not been completed and thus it is not possible to provide a complete assessment. However, what can be said is the following:

- This is an extension of Option 1 by “going further” in relation to codifying the basis of and actions that can be taken by AEMO;
- It addresses the prime issue of transparent RERT trigger and volume designed to operate only on market failure;
- It is an improvement over the current RERT;
- It may introduce risks to reliability through the over specifying of AEMO actions and limiting AEMO flexibility in circumstances that may be unforeseen.

In principle if this can be done, it would better separate market and non-market solutions and improve the operation of the market.

We suggest this option continues to be considered and recommend it be adopted after an initial (trial) period of 2 years of option 1.This means that Option 1 needs to include a requirement, that after two years, it be reviewed on the basis to further codify AEMO actions and triggers.