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Mr John Pierce
Chairman
Australian Energy Market Commission
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By online submission

Dear John

Issues Paper on Review of the National Framework for transmission reliability

AEMO welcomes the opportunity to provide feedback to the AEMC's Issues Paper on their review of the national framework for transmission reliability. AEMO notes that the SCER's Terms of Reference to the AEMC explicitly supports a planning framework which promotes efficient investments informed by a value customers place on supply reliability.

AEMO believes that all network investment should deliver a level of reliability that most effectively balances the costs of investment with the benefits of reliable supply to customers. Therefore changes to the planning framework which promote efficient outcomes for customers are essential to meet the National Electricity Objective (NEO).

AEMO therefore supports the economic cost-benefit approach to network investment. The deterministic and economic redundancy planning options are unlikely to satisfy the NEO, the SCER's terms of reference, and the AEMC's objective criteria that it established previously.

AEMO is in a unique position because it has a detailed working knowledge of the economic - redundancy standards and has made those views clear to the AEMC previously in its response to the Transmission Frameworks Review and the Productivity Commission's Electricity Networks Review. While seeking to set redundancy standards on an economic basis is a step forward from the use of rigid and arbitrary standards, they still remain redundancy standards. AEMO has articulated the challenges present in the South Australian planning approach previously and in this submission.

The AEMC should choose the most efficient standard, and then develop the best approach to applying and then measuring against that standard. The application and measurement of the standard should not alter the choice of the most efficient standard to adopt.

Grid Australia, who opposed an economic planning approach for many years, has recently acknowledged the benefits of the economic cost-benefit approach to planning in submissions to the AEMC and the Productivity Commission. While AEMO and Grid Australia are continuing their discussion on the revenue setting approach associated with Grid Australia's proposed model, there is agreement between the two that the economic cost-benefit approach is the most efficient and reliable approach to adopt for transmission planning.

One of the reasons that price rises in Victoria have been limited is because of the planning approach which limits over-investment in high cost assets by matching the profile of benefits to the cost of the options and dynamically responds to the needs of consumers, particularly in a period of declining energy demand.

The remainder of this submission outlines AEMO's preferred approach for transmission reliability planning and outlines how it best meets the AEMC's criteria. It also presents a new approach to measuring the reliability for transmission networks.

If you have any questions regarding any aspects of this submission please do not hesitate to contact Louis Tirpcou on (03) 9609 8415.

Yours sincerely

David Swift
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AEMO's Response to the Transmission Reliability Issues Paper

1. AEMO's preferred reliability planning approach

AEMO supports an economic cost-benefit planning approach.

This approach ensures the right investment is delivered to customers in the right place at the right time. In the longer-term, by linking it with revenue regulation, inefficient over-investment of network assets is prevented as businesses will be more focussed on matching the profile of the benefits to the cost of the options. This will ensure the right price-service balance is provided to customers.

The economic approach enables efficient network development with an optimal level of reliability rather than focussing on a required level of redundancy, as applied in redundancy and economic-redundancy approaches. It is also capable of measuring low probability-high impact events, and does not suffer from the emotional considerations often affected the design of redundancy planning approaches.

It delivers the optimal level of system reliability, security and congestion to address the identified need at the right time.

The economic approach uses a value of customer reliability (VCR) measure to reflect the level of reliability customer's desire.[1] This is then used to determine the expected energy not served (EENS) which can be used as a form of reliability measure, or reliability standard to be met, to benchmark businesses network performance. This measure would provide a tangible way to determine the level of reliability customers receive and is more comprehensive than the SAIDI and SAIFI targets currently produced for benchmarking.

AEMO believes that more focus on benchmarking a reliability measure such as the EENS would improve operation of the network, expenditure on maintenance, and sufficient crew to restore service within an acceptable timeframe. This will reduce the amount of capital expenditure required to meet reliability requirements and encourage investments which benefit the market at the optimal time. The EENS is set out in Attachment 1.

1.1. The AEMC's Issues Paper

AEMO acknowledges the AEMC's proposed approach which considers the planning options against the five principles previously considered by the AEMC to guide the approach selected for the national transmission reliability framework.

[1] AEMO has commenced its National VCR review as part of the SCER's review on Extreme Weather Events. AEMO will work closely with the AEMC to ensure our study and any findings at the time are considered in the AEMC's work program on transmission reliability framework.

AEMO also believes that the principles must be accurately defined before the best approach can be selected and have some concerns that the principles, as have been presented in the Issues Paper, are not clearly defined for stakeholders to effectively assess the proposed planning approaches.

AEMO is concerned that a systematic approach to evaluating the three planning approaches has not been applied and presented in the AEMC's Issues Paper. This in turn has affected and limited how stakeholders can interact and provide comment during the consultation phase, and whether any resulting decisions will be made in a transparent fashion.

AEMO's concerns are explored below.

2. Assessment against the AEMC's Criteria

The AEMCs Issues Paper does not provide a comprehensive discussion of its evaluation of each approach against the five principles, or at least the discussion does not give confidence that such an evaluation has occurred.

The AEMC also appear to have applied a significant weighting of the transparency principle in their evaluation which has resulted in a preference for the economic-redundancy planning approach. As discussed further below, the transparency identified relates to the level of redundancy that is received by consumers, not the reliability levels.

AEMO notes there is also no discussion of the specific views on the differences between approaches on matters including:

- The objectivity and judgement that need to be made
- The effort and the costs of the effort to implement and apply
- The efficiency of investments (e.g. in optimal timing or lower cost projects)
- The certainty that non-NSP stakeholders could have in measures of output reliability (as opposed to input measures) and how this may affect their costs and the broader economy.

AEMO believes the above factors must be considered across all three planning approaches to ensure the most effective approach is selected.

With regard to the specific advantages and disadvantages presented in the Issues Paper, AEMO does not believe sufficient evidence has been provided to support the AEMC's claims of the advantages that the economic-redundancy approach will have above the economic approach. In particular:

- That the economic approach requires greater effort and imposes less certainty to determine ex-ante allowances

- That the economic approach would be less transparent with regard to decision-making, or less certain with regard to reliability levels and associated investment decisions

The assumption that the level of effort required to apply an economic cost-benefit approach is greater than that for the economic-redundancy approach is incorrect. Both approaches require similar skill sets for their application as well as similar information to form the basis of the input assumptions. The economic-redundancy approach requires more effort to set the redundancy standards and periodically review, whereas once the initial set-up for the economic approach is completed the on-going requirements to apply the standard are significantly less.

In order for stakeholders to provide constructive feedback in the consultation process, AEMO believes it is critical for a more formalised and systematic evaluation to be conducted by the AEMC. This should involve a clear listing and a discussion which must weigh up, at least in a qualitative sense, the advantages and disadvantages of each option with explicit reference to the evaluation criteria.

Nevertheless, AEMO has provided its views against each of the criteria below.

2.1. Transparency

The economic-redundancy approach does not provide any more transparency over the level of reliability that a customer receives. There is only transparency over the redundancy and number of assets that are built.

Transparency normally concerns the visibility of decision making, and in a general setting is considered important in improving efficiency. That is, a lack of transparency may result in incorrect (or inefficient) decisions as they can be affected by other factors.

AEMO agrees that transparency is important, however, the Issues Paper does not provide a comprehensive definition of what the AEMC means by transparency.

AEMO is of the view that the AEMC appear to be in favour of the economic-redundancy approach (over the economic approach) due to the approach's greater 'simplicity' and 'certainty' which the AEMC implies provides greater transparency. AEMO believes that criteria such as 'simplicity' (or effort to implement and apply) and 'certainty' should be distinct and defined separately to transparency rather than implying that they are bound within the same criteria. As presented in the Issues Paper, the significance of these two important criteria on the evaluation of planning approaches is therefore misrepresented to stakeholders at this point of the consultation.

Transparency, under a stricter definition, relates only to the level of objectivity or lack of judgement that needs to be used to apply the framework. That is, is it possible for external parties with similar information to be able to distinguish the calculation of actual and forecast

reliability, standards, and therefore understand investment decisions made by the TNSP or standard setter, or even repeat the process?

AEMO believes that provided standards, methodologies, and associated assumptions are adequately defined within the framework, it is difficult to see that there would be a significant difference in transparency between the two approaches.

Recently, there has been a focus on the need for greater transparency in investment decision-making. This is due to the view that past decisions on the setting of redundancy standards by the jurisdictions and the investments considered necessary by TNSPs (and DNSPs) to comply with these standards were not made in a transparent way. That is, these have been based significantly on judgement and with lesser regard for objective economic analysis. Subsequently, electricity prices have recently increased more dramatically than in previous years.

As such, it is important for the AEMC to consider the importance customers would place on having greater transparency on investment decision-making if this had to be traded against efficiency. Additionally, policy makers want transparency to limit the likelihood of impacts from previous investment decision-making reoccurring and to ensure efficient outcomes are delivered.

The planning framework must be designed to deliver customers the level of reliability they desire and therefore the AEMC must consider the weighting that customers in particular would place on the proposed principles. AEMO believes that a solution that resulted in efficient investments would be preferred, with other incentives or mechanisms in place to ensure businesses acted appropriately.

2.2. Efficiency

The economic-redundancy approach is less efficient than the economic cost-benefit planning approach. It locks in high cost assets for no discernible reliability improvement and is incapable of responding to the changing and dynamic nature of the market.

AEMO notes the AEMC's views throughout the Issues Paper of inefficiencies resulting from the economic approach are introduced through the quality of the inputs and assumptions are erroneous and misinformed.

This view appears to be have been implied from the AEMC's evaluation of the efficiency criteria for the economic-redundancy approach. However, as the economic optimisation of both the economic-redundancy and economic approaches rely on the same assumptions, AEMO find it difficult to understand why any inefficiencies introduced due to quality issues will not be similar.

The economic approach involves a local economic optimisation for each network need. Therefore, under ideal circumstances, the reliability and investment decisions should be optimum at both the local and global level.

In addition, the economic approach more readily and inherently allows non-network options to be assessed at any time, because any non-network option can be assessed with regard to its merits for improving reliability as it does not necessary need to wait for a network need. The economic-redundancy approach on the other hand identifies that a network investment is required without considering the benefits of a non-network option to relieve the network need. That is, the standard still specifies a level of redundancy where a network investment is required to meet reliability.

An example of this inefficiency of the economic-redundancy approach can be seen in ElectraNet's PSCR of the Dalrymple connection point where the benefits of a non-network option has not been considered in order to maintain the connection point's reliability level. AEMO's analysis suggests that the requirement to maintain the same level of reliability excludes the opportunity to consider non-network support which would be a viable option due to changes in recent demand forecasts. Therefore, the economic-redundancy approach still drives inefficient investment as a connection point's original level of reliability is required to be maintained regardless of current or future economic factors. Unless the AEMC expresses the economic-redundancy approach as an output measure, it will continue to lock in high cost inefficient investments.

Further, this assessment is conducted prior to the regulatory reset of the asset owner. As a result, it requires assumptions to be made on the demand and augmentation option up to seven years in advance of the likely augmentations to address an emerging constraint. This means the AER must set the business's revenue on the basis of this standard and option that meets the standard at that time. This results in a windfall gain to the business, as identified in ESCOSA's Draft Decision on ElectraNet's proposed amendments to the ETC[2], unless all augmentation projects are excluded from the ex-ante revenue assessment and included as a contingent project.

2.3. Governance

The governance arrangements are identical between the economic cost benefit and economic redundancy approach. Both should involve a significant role for the AER in establishing the framework for how the reliability standards are defined and measured.

2.4. Fit for purpose

In a world of declining energy demand, the economic planning approach provides adjustments to both the timing and the type of investment that cannot be provided by the economic-redundancy approach.

An economic redundancy approach cannot be considered fit for purpose. It locks in high cost assets up to seven years prior to the investment occurring. In a period of uncertain

[2] ESCOSA website http://www.escosa.sa.gov.au/article/newsdetail.aspx?p=16&id=1115

demand the approach exacerbates the differences between the value that customers place on reliability and the augmentations constructed.

Further low cost solutions, such as generation support, line re-tensioning, wind monitoring, and demand side participation become more viable and attractive in a world of declining demand. They are more aligned to the profile of benefits than high cost network solutions.

The problem with using out-of-date demand forecasts is that customers are required to pay part of the costs of investments that may not be required or undertaken during that regulatory control period (or longer).

2.5. Effectiveness

AEMO questions the value of this criterion given all the other criteria established.

3. Setting the ex-ante revenue allowance

Although the Issues Paper acknowledges the possibility of improved efficiency in the economic approach, at least over the redundancy approach, it presents a large number of disadvantages associated with low transparency, certainty, and simplicity (or greater effort) and difficulties for the AER to set ex-ante revenue allowances when compared to the economic-redundancy approach.

This seems to be based upon:

- the assessment would require significantly more effort to assess the TNSP's forecast 'trigger time' for any specific proposed investment, and
- there will be greater uncertainty in this trigger time.

AEMO believes that when assessing augmentation projects associated with setting ex-ante revenue allowances, assuming the framework is defined appropriately, material increases would be unlikely to result in the uncertainty of trigger timings.

The effort associated with undertaking a robust assessment of the trigger time for a redundancy standard should not be underestimated. AEMO believes the Issues Paper provides a simplistic view of the redundancy standard, and as such, assessing compliance to these standards during the revenue reset process to determine (with great certainty) the trigger time may appear to be straight-forward.

However, there can be a large number of factors that either need to be specified with very good clarity within the standard and then confirmed by the assessor, or if not specified, need to be assumed by the TNSP and assessed for reasonableness by the assessor. Moreover, the trigger time can be highly sensitive to any of these factors and therefore any disagreements can be contentious.

It is therefore important to understand that a critical first stage of the assessment involves gaining an understanding of the impacts of the relevant technical aspects. For many projects, these technical aspects include the relevant network arrangements, network power flows, network limitations and relationship to load and generation patterns. The use of redundancy standards does not reduce this effort in any great way, as this appreciation is needed to assess both the trigger timing and suitable options.

At first sight, the assessment of a trigger time under the economic approach may seem significantly different to the redundancy approach. However, from a technical perspective they are not significantly different as both require the initial stage discussed above to be undertaken. For the economic approach, this may require some additional contingent conditions and probabilities to be considered, but this is not a significantly greater effort on the part of the assessor.

The technical measure affecting the trigger time is also not significantly different:

- For a redundancy standard, the measure is the margin of loading above some threshold that is defined through the standards.
- For the economic approach, the measure is the expected energy not served to customers, which is also largely a function of the level of loading above defined thresholds.

Although there are more steps in the economic approach (when compared to a redundancy standard) to the calculations process for the TNSP in forecasting EENS over the regulatory control period, this does not necessarily translate to more effort on the part of the assessor.

For example, the economic approach requires additional information such as VCRs, relevant outage rates and a broader range of contingency conditions to calculate EENS and therefore trigger times. However, these could be defined by the independent party who sets the standard through a periodic review which could be coordinated with the revenue reset process, as would need to occur for the economic-redundancy approach. Therefore only the correct use of the parameters would need to be reviewed by the assessor, via a similar review process that may be applied for a redundancy standard.

AEMO believes that provided the minimum requirements to apply the economic approach is well defined and policed within framework, it is difficult to see that such an assessment of EENS would result in significantly more effort or less certainty when setting the ex-ante revenue allowance than a similar level of assessment for standards that incorporate some level of redundancy.

AEMO strongly believes that the AEMC must provide further analysis and evidence to support its position on its preferred approach before progressing any further on its decision of the planning approach to be applied for the national transmission reliability framework.