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Dear Chris

### **Draft expenditure forecast assessment guidelines**

The Australian Energy Market Operator (AEMO) welcomes the opportunity to provide feedback on the Australian Energy Regulator's (AER's) draft expenditure forecast assessment guidelines for transmission and distribution (the guidelines).

AEMO supports greater transparency of information relating to network assets. This information promotes accountability and helps to ensure that the debate on matters relating to network regulation is well informed. In particular, we support a nationally consistent reporting framework that allows for improved benchmarking measures across the network businesses.

In this submission, we provide comments on:

- the AER's treatment of AEMO's demand forecasts
- further enhancements to the information requested by the AER
- the correct balance between certainty and flexibility and
- AEMO's role in submitting information relating to the Victorian transmission network.

Attachment 1 provides more detailed comments on the AER's indicative category analysis templates.

#### **1. Demand forecasting**

As noted in the Explanatory Memorandum, AEMO has recently carried out work to develop a consistent methodology for the development of transmission connection point demand forecasts. We intend to apply this methodology to connection points in New South Wales and Tasmania in time for the forecasts to be submitted to the AER as independent references for the Transgrid and Transend revenue determinations.

AEMO has sought to develop a connection point forecasting methodology that is robust, transparent and representative. In order to develop our methodology, we undertook a process that involved intensive consultation with industry, including the creation of an industry reference group and advice from ACIL Allen.

AEMO's forecasts will be prepared independently of the network businesses (although DNSPs will have a role in providing essential data). We will also have our forecasts reviewed by a different independent consultant prior to finalisation. We would welcome the opportunity to work with the AER to ensure that the AER has confidence in AEMO's forecasts.

## 2. Enhancements to the information requested by the AER

AEMO supports greater transparency of information relating to the capability of network assets. This information will allow for more effective scrutiny of TNSP's forecast capital expenditure.

In particular, additional information is required to ensure that network businesses' forecasts are not inappropriately influenced by the incentives created as a result of the AER's augmentation capex (augex) and replacement capex (repex) models.

### 2.1. Drivers of augmentation capex

Under the augex model, additional funding is triggered in the model when asset utilisation meets a specified threshold. Asset utilisation refers to the proportion of the assets' capability being used during peak demand conditions. In practice, there are a range of technical factors that can affect the safe maximum operational capability of an asset. Network businesses have significant discretion in making decisions which affect these technical factors.

Taking into account the extent of utilisation of assets under the model highlights the need to address potential capacity constraints. When assessing forecast augmentation capex, the AER should consider whether the proposed solution is the most efficient solution to that need, as well as whether the forecast costs associated with the proposed solution are efficient.

There are legitimate reasons why it is necessary for the AER's economic models to apply simplifying assumptions. However, these assumptions may have distorting effects. For instance, there is a risk that the augex model could create an incentive for network businesses to lower their notified network capability in order to achieve higher asset utilisation rates. Accordingly, it is important that the AER is able to understand the drivers of network capability, particularly where the rating of an asset changes over time.

We suggest that the AER collects information that allows it to scrutinise the basis of an assets' capability. This information would complement (and potentially subsume) the obligation on transmission networks to provide reasons for each limit as part of the network capability component of the Service Target Performance Incentive Scheme.<sup>1</sup> We consider that there are benefits in collecting this information as part of the main reporting framework to make sure that:

- the obligation to provide information is consistent across all network businesses and
- the information provided is of an appropriate level of detail.

The AER should collect information on asset utilisation not only at peak times but also at other times. Information of this nature would help the AER to ensure that the most efficient asset is built and reduce the likelihood of stranded assets if peak demand does not eventuate. For instance, this information could be used to assess whether demand side participation could be a cost effective alternative to network augmentation.

Finally, data on the extent of over-utilisation would be helpful in forming a view on whether the network capability reported by the NSP is a realistic representation of the actual capability of the network.

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<sup>1</sup> AER, *Electricity transmission network service providers Service target performance incentive scheme*, December 2012, pg 11.

## 2.2. Drivers of replacement capex

Replacement expenditure is crucial in an environment of low or even declining demand. As the need for augmentation expenditure declines, replacement expenditure will account for an increasing proportion of an NSP's overall capex program. Further, the impact of cost increases on prices becomes more marked since cost increases are less able to be absorbed by a growing demand base.

These changing circumstances mean that going forward, forecast replacement expenditure should receive more detailed scrutiny during the regulatory determination process. The AER's assessment should be of a level of sophistication that reflects the growing importance of repex in driving prices.

AEMO believes the current regulatory framework does not incentivise businesses to prolong the life of their assets (where possible) to maximise their use, especially where those assets have a written down value of zero in the regulatory asset base.

AEMO notes that under the repex model, the repex allowance is linked to the age of the network businesses' asset compared to its replacement asset life. While asset age is a relevant consideration when assessing whether an asset should be replaced, there are a number of other relevant factors including:

- asset condition
- asset performance
- historic utilisation and
- industry data on the performance of particular models or classes of components.

NSPs' asset management programs should aim to minimise costs over the life of the asset. Going forward, the information collected by the AER might be used to develop an incentive scheme that rewards network businesses for retaining and utilising that asset if they believe it is technically capable.

The AER should also collect information that allows it to carefully scrutinise the average asset lives proposed by network businesses. In particular, businesses should be required to report on circumstances where an asset's (or group of assets') expected life span changes after the asset has been built.

Our detailed suggestions for what further information the AER should request are set out in Attachment 1.

## 3. Certainty vs flexibility

AEMO supports the approach adopted by the AER in preparing the guidelines.

The draft guidelines strike an appropriate balance between certainty and flexibility. While network businesses value the opportunity to understand how the information they submit will be assessed, it is appropriate for the guidelines to remain high level. It is not in the interests of consumers for the AER to commit to a detailed assessment methodology before the relevant issues are understood.

AEMO questions the value of adding further principles to the guidelines given that the principles to be applied by the AER during a revenue determination are already set out in the National Electricity Law and Rules.

#### 4. AEMO information reporting

Finally, given its functions as the planner-procurer of the Victorian transmission network, AEMO will be responsible for providing some of the information required by AER, which we welcome due to our support for economic benchmarking. We are working with SP AusNet and the AER to ensure that:

- responsibility for preparing the required data is clearly allocated, and
- lines of communication are in place to resolve any inter-dependencies.

AEMO looks forward to working with the AER on the development of the guidelines and data templates. If you have any questions regarding any aspects of this submission please do not hesitate to contact Reena Kwong on (03) 9609 8492.

Yours sincerely



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## **Attachment 1 - AER indicative category analysis templates**

This attachment sets out AEMO's comments on the AER's indicative category analysis templates.

### **A1. Transmission replacement expenditure (Tables 1.3 and 1.4.)**

As set out in section 2.2 of the main submission, AEMO believes there is scope for the AER to collect more detailed information in relation to the need for proposed replacement expenditure. In addition to information on asset age, the AER should consider collecting data on:

- asset condition
- asset performance
- historic utilisation and
- industry data on the performance of particular models or classes of components.

This information would help the AER to understand the drivers for the NSP's proposed repex so that it can ensure that NSPs incur only efficient repex.

Tables 1.3 and 1.4 request cost data for certain transmission elements at different voltage levels. The list of elements currently requested is incomplete. We propose that these tables be extended to include data for underground cables and Gas Insulated Switchgear (GIS) at all voltage levels in the TNSP's network.

This information would help to build a more complete picture of TNSP's cost drivers encompassing the full range of transmission elements. It would provide greater transparency of costs for future developments and would allow augmentation projects to be scoped out more accurately.

In addition to the nominal voltage rating requested, AEMO suggests the continuous ampere rating be specified of all assets for which costs are provided. This includes overhead lines and underground cables, including cable type as costs and ampere ratings will differ for different cables. For overhead lines, the corresponding ambient air temperature should also be provided for the particular continuous rating for completeness.

AEMO also believes further clarification on "Forecast Asset Replacement Quantities" is required. Assets are not necessarily replaced on a like-for-like basis. Changes in technology and/or demand conditions since the asset was installed may mean that the previous network configuration is no longer the most efficient solution. Depending on the circumstances, replacement costs could refer to a wide range of potential activities such as:

- removing parts of an existing station or line
- disposal of the asset (possibly offset by price received from sale for scrap or other use) including structures and/or foundations not suitable for further use
- land and line easement costs where replacement works cannot be carried out within the confines of the existing easement
- reinstatement of the vacated location, if needed to install the replacement asset, and
- supply and installation of hardware replacing those parts of an existing station or line removed.

In order to assess whether proposed replacement expenditure is efficient, it would be helpful if the AER seeks more information on the nature of the works. It would also ensure consistency of reporting across all network businesses and remove any potential discrepancy that may result from a broader category.

#### A2. Demand (Tables 3.1 and 3.2)

AEMO is unclear about the AER's request for "Raw maximum demand" at both 10% POE and 50% POE levels. Historical demand figures are either raw data, that is measured data, or they may be a backcast of historical temperature corrected POE data; the two types of data are completely different. To avoid confusion, AEMO suggests that the AER change the data table to explicitly request raw data or POE data depending on its intended purpose, noting that AEMO uses raw data for historical purposes and POE data for forecasting purposes.

Further benefit to the market would be obtained by requesting sub-transmission point demand forecasts (as well as transmission point demand forecasts) as part of Table 3.2. This would assist with studies relating to areas of the network where the high voltage network connects to the sub-transmission level, for example the Sydney CBD. These forecasts would provide greater transparency to enable the lower voltage network to be modelled in more detail so that thorough options analysis can be performed to deliver the most efficient solution for consumers.

#### A3. Augmentation expenditure (Tables 4.1 through to 4.12)

AEMO acknowledges that the AER is requesting information relating to changes in the capacity of transmission, sub-transmission and distribution plant during a regulatory period. Currently, existing transmission network asset information is published on the AEMO website and is available for planning purposes.

For the benefit of the market, AEMO believes obtaining ratings of existing sub-transmission and distribution network assets which are currently not publically available would support better operational and planning decision making. Although AEMO is not responsible for monitoring the security of the sub-transmission or distribution networks, there an interaction between the transmission network and the lower voltage parts of the network that needs to be understood in order to be able to reliably model the transmission network.

Data on the ratings of existing sub-transmission and distribution network assets would improve transparency on asset capability across the different networks of the NEM and would assist in joint planning processes. As discussed in Section 2.1 of the main submission, this information would also help to prevent gaming of the augex model.

At present, AEMO has knowledge of the overall rating (or limit) between nodes, that is between terminal stations, substations or power stations, however we note that information on the limiting elements between such nodes, for example inter-plant connections, circuit breakers, isolators and current transformers, is not publically available. AEMO proposes that additional information on ratings and limitations of such network elements should also be requested from network businesses as this type of information would assist in a more thorough understanding of the network issues and would allow more appropriate development of options to relieve the network constraints. Network businesses should also be required to explain the reasons for any reductions in asset ratings.

Rather than only requesting N-1 emergency ratings, it would also be beneficial to obtain information on other important parameters such as 5, 10 and 15 minute ratings for network lines. This would provide a more complete picture of the capability of the network and may

be relevant to assessing the feasibility of non-network options as an alternative to network augmentation.

AEMO notes that many projects consist of combinations of network elements, for example lines and transformers, and disaggregating these into individual entries makes it more difficult to reconcile projects in these templates against those published in APRs and RIT-Ts. AEMO suggests one table for new projects which requests information relating to additional capacity provided with the corresponding assets associated with that new project would enable easier reconciliation against APRs and RIT-Ts.

It is unclear about how network businesses would provide information on projects that relieve non-thermal issues, such as voltage control (particularly low voltage) issues, as might be the case for reactive compensation equipment. Further, for projects required to solve low load conditions, information on peak demand forecasts would not be relevant. Therefore, the AER needs to consider how information relevant to such projects is captured in the templates. Additionally, it is unclear if projects required to upgrade the network would be captured through the templates. AEMO notes only commissioned asset details are requested. In order to ensure all information on the full suite of projects businesses may undertake are accounted for, AEMO believes provision for non-thermal and upgrade projects should also be included in these templates.

In relation to Table 4.8, AEMO notes that the template requires only primary and secondary substation voltage information. The AER must consider that some substations, for example Belmont in Queensland, feed multiple voltages and therefore tertiary substation voltages should be included in the templates. The aim should be to ensure all data at each substation is obtained.

AEMO considers that there would be benefits associated with obtaining more specific information in relation to land (that is station site) and line easement costs. Network businesses should be required to specify the site area, easement length and width for which costs are provided as well as the proportion of the site or easement costs that are needed for each asset. This may also include costs of foreseeable future development requirements. This information is relevant to the efficiency of a TNSP's land and easement expenditure and would also help to assess the feasibility of different augmentation options.

#### A4. Quality of service data

AEMO supports the provision of quality of service information. This will ensure aspects of all network assets are transparent and can further enhance scrutiny of capital expenditure programs.

Within the AER's templates, AEMO proposes including plant outage data for elements, particularly network circuits and transformers, at each of the voltage levels in the NEM. This information would assist in the calculation of probabilities of network outages of these elements which could then be applied more accurately to economic planning studies, including RIT-T assessments. This would further enhance the transparency of the economic planning approach and thoroughness of cost benefit assessments that are undertaken for reliability planning.

Suggested additional data include:

1. Network circuits (e.g. 500kV, 330kV, 275kV, 220kV, 132kV, 110kV, 66kV, 44kV, 33kV, 22kV, 11kV and any other voltages in the NEM)
  - a. Number of total circuits

b. Total distance of circuits (km)

For both planned and unplanned outages:

c. Number of years with historical outage data

d. Total number of outages

e. Total duration of outages (hr)

f. Maximum duration of an outage (hr).

2. Transformers (e.g. 500/330kV, 500/275kV, 500/220kV, 330/275kV, 330/220kV, 330/132kV, 275/132kV, 330/110kV, 275/110kV, 220/66kV and any other voltages in the NEM)

a. Number of transformers

For both planned and unplanned outages:

b. Number of years with historical outage data

c. Total number of outages

d. Total duration of outages (hr)

e. Maximum duration of an outage (hr).