

# Expenditure Forecast Assessment Guidelines

## Working Group meeting No. 12

### Summary of meeting – 30 April 2013

#### *Economic benchmarking – measurement of DNSP outputs and environmental factors*

Held via video link between AER's Melbourne and Sydney offices

On 30 April 2013, the AER, as part of its Better Regulation package, hosted a working group meeting on the development of the Expenditure forecast assessment guidelines (the Guidelines).

A full attendee list can be found at Attachment A.

This summary outlines the key topics and themes of the meeting, including views expressed at the meeting, without ascribing particular comments to any one individual or organisation.

#### **1** *Introductions*

AER staff noted this workshop commenced phase two of the AER's consultation on the use of economic benchmarking.

In this workshop, AER staff sought feedback from stakeholders on issues relating to the measurement of outputs and environmental variables for economic benchmarking of distribution network service providers (DNSPs).

The AER's consultant, Economic Insights, summarised its briefing notes on measurement of outputs, provided a short list of data requirements and examples of different output specifications.

The briefing notes and slides used in the presentation are available at:

<http://www.aer.gov.au/node/19508>

#### **2** *Major issues for discussion and feedback from the workshop*

##### **Model specification**

Stakeholders requested clarification on how reliability can be included in economic benchmarking as an output.

Economic Insights explained two different methodologies for incorporating reliability. The first method involves including outages as an undesirable output which has a negative weight. The

second methodology would be to subtract the actual level of reliability from a benchmark level of worst acceptable reliability; this methodology would require a subjective decision on what the appropriate benchmark reliability level would be.

During the discussion of whether system capacity or a measure of peak demand should be included, a stakeholder suggested that if network capacity is used then it should be adjusted for the level of utilisation. This approach could address the incentive for businesses to overbuild if system capacity is included as an output.

AER staff agreed that this methodology warrants further investigation and suggested a submission on this methodology would assist the AER.

Stakeholders noted that the use of forecast peak demand is more appropriate than actual peak demand because businesses make investment decisions based on their forecasts. Further, stakeholders noted that some investments may take several years to complete and cannot necessarily be easily adjusted to take into account differences between actual and forecast demand.

AER staff noted forecasts included errors and peak demand forecasts have been inaccurate. This inaccuracy may unduly skew the benchmarking results. Further it was noted that the use of peak demand forecasts from the previous regulatory determination may create an incentive to over-forecast demand in future reviews and NSPs' regular internal forecasts maybe more appropriate. AER staff noted that this measure may warrant further consideration and requested stakeholders to provide submissions on which source of peak demand forecasts were appropriate.

A stakeholder noted that AEMO's forecasts did not reflect the businesses' forecasts of peak demand and may not be an appropriate basis for benchmarking distribution networks.

Stakeholders asked if the value of customer reliability (used to price interruptions) would be the same for all businesses. The AER responded that for consistency, the value adopted in the STPIS should also be adopted for the purposes of benchmarking.

Economic Insights stated that if disaggregated VCR estimates by business or jurisdiction become available they should be used, however there has been a lack of customer valuation studies in recent years.

AER staff noted that the value of customer reliability (VCR) and STPIS can be updated over time.

A stakeholder noted that AEMO is updating its VCR.

Stakeholders noted the importance of cost shares and asked what methodology would be used to obtain cost shares.

Economic Insights stated that a range of sources should be used to determine cost shares such as econometric methods, past studies and seeking fully distributed cost data from the businesses.

Stakeholders asked if economic benchmarking would be implemented for gas businesses following the electricity guidelines process.

AER staff noted that the AER will likely apply economic benchmarking to the gas sector over time and that it was introducing performance reports. However, the current focus of work was on the development of economic benchmarking for electricity networks.

Stakeholders asked how the AER would take into account legacy system structures.

AER staff noted this issue related to inputs and that some efficiencies can be achieved over the short term and other efficiencies may only be achieved over the long term. Economic Insights noted data will be collected on the different transformation levels and line voltage categories. This should allow sensitivity analysis to be undertaken and potentially more like with like comparisons to be made by ring fencing of costs. It also noted that it might be possible to manage legacy issues through the use of environmental variables.

## **Outputs data requirements**

### **Revenue**

Stakeholders noted off-peak and on-peak times are different across businesses.

Stakeholders asked if it was the intention of the AER to modify the current RIN for economic benchmarking.

AER staff noted that it intends to request this data as a part of an annual RIN.

Stakeholders asked if the economic benchmarking data would be available to the public. Stakeholders also noted there may be confidentiality issues in regards to revenue for some classes of customers.

AER staff noted that it intends to publish as much data as possible taking into account confidential information considerations. One solution proposed was a higher level of aggregation for some customer types.

### **System demand**

Stakeholders noted that peak demand data was collected on a weather corrected basis.

Economic Insights noted that raw data is preferred as it allows more transparent smoothing to be done. It also noted that weather would be included as an environmental factor.

### **System capacity**

Stakeholders asked if firm capacity or nameplate capacity would be used.

AER staff noted that it preferred nameplate.

Economic Insights clarified that it proposed asking for both assigned and nameplate ratings for zone substation transformers but only nameplate ratings for distribution level transformers as NSPs were only likely to undertake independent assessment of the larger zone substation transformers.

## **Customer numbers**

Stakeholders asked if customer numbers were to be reported on a calendar year or financial year basis. Further, it was noted changing the reporting format for customer numbers was possible but revenue was more difficult for those NSPs which report on a calendar year basis.

Economic Insights noted that it would be possible to average the data for adjoining calendar years for those NSPs which report on a calendar year basis to make their data more directly comparable with that of NSPs reporting on a financial year basis.

## **Reliability**

AER staff noted exclusions should be consistent and that they may differ across jurisdictions.

Stakeholders noted that energy not supplied could be included. Other stakeholders noted that this may potentially be a lot of work to gather the required data.

AER staff agreed that energy not supplied could be a useful measure which captures effects on customers and would like submissions on how much work would be required to gather this data. It was noted that reasonable assumptions regarding load profiles could be made to make the task less onerous.

## **Energy delivered**

Stakeholders noted that embedded generation complicates the accurate measurement of energy consumed.

AER staff asked if obtaining net metering would resolve some of the issues around embedded generation.

Stakeholders noted that net metering did not capture situations where energy was being delivered to as well as being received from embedded generation customers. A stakeholder suggested that the impact on networks of rooftop PV generation could be estimated using data by network on number of PV installations and average installation size.

AER staff requested submissions on this issue, in particular on whether or not the trade off between the difficulty obtaining this data and the extra information it provided was worth it.

## **Line losses**

Stakeholders noted that the data list included a definition on line losses.

Stakeholders asked why line losses have been included.

AER staff noted line losses would be used for sensitivity analysis and that customers may place value on reducing line losses.

Stakeholders noted that they already had an obligation to report line losses. It was suggested that the reporting requirement be consistent with this obligation.

Stakeholders mentioned that other jurisdictions had a loss reduction incentive scheme and that it was a sign of network health. It was suggested line losses could be included in economic benchmarking as an undesirable output in an analogous fashion to outages.

## **Other outputs**

Stakeholders noted that an asset health index, although difficult to measure could be included.

## **Environmental factors data requirements**

Stakeholders questioned the basis on which temperature thresholds were established.

Stakeholders noted that some weather effects may impact the network for several days.

Economic Insights noted that the cumulative effect of weather was listed for possible future inclusion in a 'climatic difficulty' index. Economic Insights also noted that the average temperature for extreme weather days was based on the average temperature for the day, generally taken to be the average of the day's maximum and minimum temperatures.

Stakeholders asked how the weather variables would reflect the service area of the businesses. Stakeholders noted that there could be significant weather variations within larger networks for example in the Essential Energy network you could have heat waves in the south and mild conditions in the north. Stakeholders also noted how weather conditions could have a material impact on vegetation management costs in some areas.

AER staff noted that the weather variables would be representative of the service area by using specific weather stations.

AER staff also noted that other weather effects such as lightning strikes could be included if they have a material impact on the network.

Economic Insights noted that using unadjusted output data and adjusting for weather effects through operating environment factors should ideally produce a similar result to using the weather adjusted output data; however in practice this may not always be the case.

Stakeholders asked if density would result in a diseconomy for low and high customer density areas.

Economic Insights noted that some studies did show disadvantages for very high customer density DNSPs as well as for low customer density DNSPs but that in general those DNSPs with higher customer densities have advantages in efficiency comparisons.

Stakeholders asked if there was a multicollinearity issue by including line length, customers and customer density.

Economic Insights noted that the selection of environmental factors cannot be undertaken independently of the selection of outputs and inputs and should be undertaken with consideration of multicollinearity.

A stakeholder noted that snow affected terrain had not been included as an operating environment variable. Economic Insights responded that this factor would be partly reflected in the number of cold days measure.

Stakeholders requested AER staff's views on weather factors and noted there needed to be agreement on which weather stations to use.

Economic Insights and AER staff noted that the AER would be gathering data based on the short list and would also ask the businesses for data.

Stakeholders asked how the AER would adjust raw data.

AER staff stated that it would regress the efficiency scores against environmental variables and select those environmental variables that were significant in the regression analysis. It would then use the regression results to obtain adjusted efficiency scores.

Stakeholders asked how many years of data would be required.

Economic Insights stated that generally more data is better as it allows more robust estimates to be made of the impact of operating environment factors. However, a basic regression could be run with one year's data and two to three years data would allow a more robust regression to be undertaken.

AER staff noted that environmental factors could also be taken into account qualitatively, and that the findings of economic benchmarking would be considered in conjunction with other analysis by the AER and the submissions of stakeholders.

Stakeholders asked if peakiness of rare events that businesses may be building for (one in ten year events) would be recognised, as under the 'road network' analogy, the proposed Extreme Heat Days weather factor may disadvantage networks located in climatic regions that experience infrequent but extreme maximum temperatures.

Economic Insights noted that, where smoothing of variables was required, it favoured frontier-based smoothing rather than average value smoothing. That is, infrequent events would be taken into account to the extent possible.

Stakeholders noted that costs were based on estimated risk and not actual annual occurrences.

A stakeholder noted that bush fire risk should be measured as the percentage of service area classified by Fire Authorities as high bush fire risk because the costs are associated with managing the risk.

A stakeholder noted that 'active' vegetation management should be defined as the distributor having primary responsibility for vegetation management rather than the Council.

## ***Attachment A: Attendee list***

### **Melbourne office**

<b>Name</b>	<b>Organisation</b>
Damien O'Connor	SA Power Networks
David Dawson	Strategic Economic Consulting Group
George Grozev	CSIRO
Guy Mutasa	Energex
Jeremy Rothfield	United Energy & Multinet Gas
Jim Bain	Energy Networks Association
Megan Willcox	CitiPower & Powercor Australia
Peter Bucki	Envestra
Warwick Tudehope	Jemena
Anh Mai	SP AusNet
Anthony Seipolt	AER
Lawrence Irlam	AER
Chris Pattas	AER
Andrew Ley	AER
Jason King	AER
Su Wu	AER
Kevin Cheung	AER
Denis Lawrence	Economic Insights
John Kain	Economic Insights

### **Sydney office**

<b>Name</b>	<b>Organisation</b>
Matt Cooper	AusGrid
Mark Hillsdon	Essential Energy
Matt Le Cornu	AER