

**Expenditure Forecast Assessment Guidelines**

**Summary of meeting – 24 September 2013**

***Category analysis data templates***

Held via video link between the AER’s Sydney, Melbourne and Canberra offices

On 24 September 2013, the AER, as part of its Better Regulation work program, hosted a meeting to discuss the category analysis data templates published with the AER Draft Expenditure Assessment Guidelines on 9 August 2013. The meeting ran from 9:00 am to 1:00 pm and was chaired by Max Hooper of the AER. A full attendee list can be found in Attachment A.

This summary outlines the key topics and themes of the meeting, including views expressed at the meeting. The outline broadly follows that of the agenda.

1. ***Objectives and general comments***

The objectives of the workshop were to:

* discuss how the businesses could complete the templates
* discuss comments in response to the Category Analysis Survey and relevant comments in the businesses submissions, and
* where businesses has indicated challenges existed to completing the templates:
  + identify what specific issues are; and
  + how specific issues can be overcome.

AER staff indicated at the start of the meeting the objectives above, that the views expressed were AER staff member views, and that minutes and actions would be recorded and published.

Networks NSW made several general comments at the start of the meeting:

* It is not clear what each template is asking. Similar to augex and repex, it would be useful to have a handbook on how to use the templates. This should also set out what the data will be used for.
* Lots of information will require estimation and the AER will need to consider this when using this information in the context of giving weight to benchmarking information in a regulatory determination.
* It would be appropriate to have a less onerous audit given the likely reliability of estimated data.
* It was surprised by the level of detail in the templates.

TransGrid commented:

* The AER needs to consider where it would achieve the best value proposition in relation to data collection.
* Some data may not be needed.
* Some data may not be reliable.

In response to these initial comments, AER staff made the following comments:

* The AER expects to issue draft RINs in late November or early December.
* An explanatory statement will be issued alongside the RIN setting out the purpose of collecting the data and generally what it will be used for. However, it is unlikely to be highly detailed on how data will be used as this will depend on the data obtained.
* The AER understands some data will require estimation. However, it is important to understand what will require estimation, why it will require estimation, and how this estimation has been done.
* Audit requirements will be considered in light of the data that is being collected.

The NSPs then commented that while the businesses can attempt to indicate how data will be estimated, some estimation process will not be determined until they attempt to fill in the templates.

AER staff acknowledged these challenges, however indicated the businesses should try to determine what they expect to be able to do in order to inform the current consultation process.

The DNSPs indicated that their response to the AER’s Forecast Expenditure Assessment draft guideline requested that the required date for submitting an economic benchmarking RIN be after the lodgement of the regulatory proposals in May 2014 in recognition of the significant resourcing requirements already associated with preparing their regulatory proposals and a detailed reset RIN. As a minimum, the DNSPs would expect one consolidated RIN in order to minimise the regulatory costs of complying with two separate RINs during final stages of the regulatory proposal process.

TransGrid indicated that they expect the same level of detail from the AER in the RIN explanatory statement as the AER is requiring from the businesses in the templates.

AER staff then worked through each of the key expenditure assessment categories and associated templates.

1. ***Overheads***

NSPs commented that definitions of direct versus indirect costs, and network overhead versus corporate overhead should be clarified. AER staff responded that “network overheads” consist of expenditure relating to network operating costs, control centre, operational switching, outage planning, and IT and vehicles used for network operations. AER staff commented further that definitions of direct and indirect costs and overheads are already discussed in the NSPs’ CAM documents that have been in effect since 2008.

Ausgrid noted that the basis of allocation of overheads is based on the activity being performed and therefore information on forecast and historic information requires estimation. As an example, Ausgrid commented that network control room expenses are treated as capex. It was also noted that system operations costs are sometimes booked to individual projects.

NSPs commented that overhead allocations across businesses are not comparable because they have different CAMs. AER staff replied that it is not requiring a standardised CAM for all businesses. Instead, the AER requires more visibility and transparency on how overheads are allocated, particularly at the lower level below the categories of services. Essential Energy noted that it allocates all costs to activities.

Ausgrid noted that superannuation would be almost impossible to delineate as a reporting line item, as our accounting systems attach superannuation costs to each employee (i.e. as an on-cost to the labour). Labour is then booked to the activity being performed. The treatment of vehicle costs was still to be confirmed.

1. ***Replacement capex***

AER staff initiated the discussion of the repex data requirements by noting the objective in repex is to standardise the asset categories making up the asset groups that NSPs are currently required to report against.

AER staff then briefly recapped the process so far taken to meet these standardisation objectives.

AER staff noted that the Issues Paper proposed to maintain the approach of collecting asset volumes and unit costs, and sought feedback on using repex model asset groups that were used in its latest determinations. NSPs generally noted that the higher level asset groups for sub-transmission and 11kV assets capture material differences in work processes and asset lives, but expressed concern at the ability to provide information for the lower level categories.

The DNSPs expressed concern with the categorisation of distribution assets, particularly reporting ‘switchgear and transformers’ separately for distribution assets. Ausgrid considered that this should be replaced with a single category called ‘distribution substations’ because:

* replacement decisions are generally made on the distribution substation, rather than separate decisions for switchgear and transformer
* the majority of suppliers these days have a one-stop shop for distribution substations which contain the transformers and switchgear
* the unit costs would not include the housing equipment if the DNSP was asked to provide a cost breakdown for transformers and switchgear.

AER staff noted the major issues identified at the Issues Paper stage by NSPs were that they should have discretion to classify assets below the asset groups. Some NSPs indicated a preference for some groups to aggregate into major categories. AER staff noted that after receiving responses to the Issues Paper there was a pre–draft guideline consultation period, where AER staff circulated a “straw-man” outlining standardised asset types, proposing they be based design on specifications materially affecting cost. The repex data template released with the draft guidelines is an illustration of staff’s further reflection on NSP responses to the straw-man.

The following key issues were then discussed between AER staff and the NSPs:

* AER staff clarified a general concern raised by NSPs across the NEM regarding the discretion NSPs have to disaggregate the asset categories at a lower level than those in the template. AER staff pointed out that NSPs were free to disaggregate the asset categories provided such practices are transparently documented how this was done. Ausgrid noted it would not be able to provide the data for the categories in the template, and that the AER should provide the ability for DNSPs to report or aggregate information, where reporting against the existing categories would result in misleading estimations.
* AER staff sought NSPs views on the definitions of high, medium and low ampere rating bands applying to various repex asset categories. AER staff clarified that the AER purposely did not specify the rating bands, considering it likely only a few discrete rating bands applied to each asset type. The AER considered NSPs would be in the best position to classify these. Essential Energy cautioned against using specific rating bands for benchmarking purposes, noting the approach could result in asset categories which appeared nonsensical, citing the example of the over-engineering of an assets capacity to cope with a voltage drop event. AER staff noted that they did not consider this was out of line with the overall benchmarking objectives. NSPs indicated willingness for further consultation on what they considered would be appropriate bands, including potential involvement from the ENA and GridAustralia.
* AER staff sought NSPs views on the historical data required by the AER to generate the age profile applied in the repex model. Ausgrid noted that it would have difficulty in mapping existing asset registers to the AERs asset categories going back in time because of issues in data retention related to the organisation’s life. Ausgrid noted it would have difficulty owing to its origins as an amalgamation of smaller entities, each of which had differing levels of historical data quality Ausgrid discussed potential methods to estimate/ approximate installation dates of some assets (e.g. using pole age data to approximate the age of other proximate field assets). TransGrid considered it would not encounter the legacy information issues affecting Ausgrid given its lower volume of assets, however noting difficulty in allocating historical costs. ActewAGL also considered it would not face the legacy information issues encountered by Ausgrid.
* NSPs sought clarification on the repex model calibration processes. AER staff noted that the approach would be the same in the Victorian and Aurora distribution determinations. AER staff pointed out they were currently improving the calibration documentation in the guide to the repex model. NSPs considered there was uncertainty in the application of asset data, citing an example in the Aurora determination where the AER excluded certain CitiPower data as not comparable. AER staff noted that there were judgement calls involved in the applicability of data going into the repex model.
* NSPs consistently noted the difficulty in determining the appropriate estimation method for the data outlined in the template. AER staff sought the NSPs view on the how to overcome these estimating issues. In response it was noted that OFWAT had developed an approach of engaging external engineers to collect the information that could be effective, assess its usefulness, and outline a ranking system based on the limitations.

1. ***Demand forecast***

AER staff noted the indicative templates contained two formats for collecting demand data:

* for demand forecast assessments (tabs 3.1 and 3.2)
* for populating the augex model (tabs 3.3 and 3.4)

The two formats would collect very similar information and may be consolidated to avoid potential duplication. This depends on segments used for demand forecasting purposes being consistent with the segments for the augex model. The NSW NSPs considered the two formats should be consolidated to avoid duplication.

AER staff noted TransGrid’s response to the indicative templates survey where it stated it may not be able to provide temperature at the time of maximum demand in all cases, nor the weather station used. AER staff noted temperature is generally regarded as an important explanatory variable in demand forecasting, NSPs would therefore be expected to be able to provide such data. TransGrid stated AEMO and Monash University provides demand forecasting services for NSW. It is understood Monash University uses several days’ worth of temperature data as an explanatory variable in its demand forecasting process. In such cases, AER staff stated it is important NSPs be able to provide the explanatory variables that they use and be able to justify their approach with data and documentation.

Endeavour Energy noted it does not forecast system coincident demand at the zone substation level.

TransGrid questioned why the AER is asking for MVA data. AER staff stated MVA is the measure used for planning network augmentations, hence the AER will require demand data in MVA (as well as MW) to assess augex forecasts.[[1]](#footnote-1) The NSW NSPs noted that certain types of augmentations, such as main grid augmentations, will depend on factors such as generation dispatch and inter/intra-regional flows as well as demand patterns.

TransGrid questioned the value of gathering demand data at all its (approximately) 400 connection points and what the AER would do with this data. TransGrid stated only a very limited amount of augmentation will be required for a small number of connection points and the data related to these connection points would be provided with revenue proposals, and that detailed review of the particular needs would be a far more proportionate approach. AER staff undertook to provide a clear justification for requesting this information.

1. ***Augmentation capex***

AER staff noted the indicative templates would collect augex information for two separate processes:

* To populate the augex model (templates 4.6 to 4.13)
* For asset data analysis (templates 4.1 to 4.5)

AER staff noted that the augex model, by itself, may not be sufficient to assess augex forecasts. Hence, the AER proposes to collect cost information for individual augex projects, including physical metrics, unit costs and volumes for the major assets that comprise augex projects, and other labour and material costs.

The DNSPs sought clarity on whether the information provided would be used by the AER to populate the augex model, and questioned whether any transposition errors would occur in the process.

The DNSPs noted tabs ‘4.4 AUGEX dist subs’ and ‘4.5 AUGEX LV feeders’ is very detailed and would require potentially inputting the data for approximately 30,000 smaller augex projects. AER staff clarified that neither of those tabs require data inputs for individual distribution substation or LV feeder augex, respectively. Rather, DNSPs are to aggregate such projects against those indicated by the drop down list. Ausgrid stated it would forecast such projects using a ‘fix mix’ of 7 or 8 similar projects, though there is still variety within such classifications. ActewAGL stated it breaks up such augex differently from other DNSPs because of its smaller size. AER staff noted they were open to suggestions to how to better categorise augex for distribution substations and feeders, respectively, in order to arrive at more suitable classifications for such expenditure that can be applied across businesses.

The DNSPs stated the augex assessment process appeared to be less developed than other expenditure assessment processes and suggested another workshop to discuss this area. AER staff undertook to discuss the expenditure categories with the relevant staff at each NSP, including augex forecast assessment.

TransGrid asked whether tabs 4.12 and 4.13 would apply to TNSPs. AER staff noted they summarise the data required for the augex model, hence TNSPs would be required to complete those templates although would confirm this. TransGrid also suggested that it be exempted from completing the templates for the augex model and questioned the value at this time, given augex will not be a major expenditure item due to the subdued demand forecasts. AER staff took this on notice.

The NSPs asked the general question of the value of the augex data the AER intended to collect and suggested it perform a cost-benefit analysis on these requirements. The NSPs stated they are concerned with the short term, where they are preparing for their upcoming determinations, rather than the long term.

1. ***Connections and customer driven works***

AER staff introduced customer-initiated works category templates, providing an overview of the information being sought and reasons to justify the classification of expenditure categories.

AER staff outlined the benefits of standardised reporting templates as being to generalise large programs of customer-initiated works, and, where possible, allow for the benchmarking of works across NSPs.

### Connections – Transmission

AER staff re-capped concerns raised in TransGrid’s survey response, which included:

* General clarification of instructions for filling out transmission connections template
* How the information provided in expenditure forecast templates will be used.

AER staff explained the expenditure templates intended to collect data for each connection project classified as a prescribed service. Additionally, AER staff added that the data garnered from the expenditure template would be used by the AER to perform a detailed engineering assessment of transmission connection projects. TransGrid indicated that upcoming connection projects were expected to be few in volume and that only those connecting to distribution networks are prescribed services, involving either the installation of switchbays and busbars. TransGrid were concerned about how the CBD/Urban/Rural data categories would be used by the AER in its analysis of connection projects. AER staff acknowledged that the CBD/Urban/Rural categories were used as a measure of density and may have limited use in the assessment of transmission connection projects. AER staff emphasised that the data reporting templates allowed for transmission providers to nominate locations of where connection works were being performed to take into account location-specific conditions (i.e. ground surface, topography). TransGrid considered that it would be able to report connection capacity according to the connection rating (MVA) and voltage (kV). Generally, TransGrid concluded that it was comfortable with the level of detail being sought by the AER in its reporting template for transmission connections.

### Connections – Distribution

The DNSPs highlighted that connection services are contestable in NSW, with most connection activities being performed by accredited service providers (ASP). AER staff sought clarity about which activities, if any, were completed by the NSW DNSPs. The DNSPs noted that consistent with the AER’s Framework and Approach paper, dedicated connections are an unclassified service in NSW, while augmentations of the network (i.e. those not dedicated to the customer) are standard control services. The DNSPs advised that they perform some connection activities such as audit and certification which will be classified as alternative control services.

The DNSPs noted they provide some services which are mandated by the NSW state Government in locations where a competitive tender market does not exist for connection services. Furthermore, the DNSPs advised that the connection activity more regularly performed is ‘deep augmentations’ which are required to connect distant customers to the shared distribution network.

The NSPs considered connection works classified by the AER as standard control services would be reported as complex connections for the purposes of the RIN. They would not be in a position to report (estimate or actual) on simple connections as these relate to activities performed in a contestable market. The DNSPs noted that limited data is available on work performed by third parties and such data would not be able to be procured from DNSPs directly as this may breach confidentiality of third parties and raise competition policy concerns of collecting information from competitors in an open market. Where assets have been gifted to distributor there is limited data available at a disaggregated level. Gifted assets had at least an approximated value for reporting asset costs for tax purposes.

The NSPs would follow up on the historical information they would provide to the AER on the deep augmentation cost, which included the recording of connection works by location.

Charges from connection costs associated with alternative control services are generally not available in a granular enough detail to estimate location specific costs. It was noted that this information is collected from the fee and quoted services tab in any case.

### Fee/quoted services

The DNSPs expressed concern that template appeared to be based on Victoria, and that the categories do not relate to the services which the AER consider are ancillary services. For example, public lighting and metering are separately regulated.

The DNSPs considered that direct costs are available only for works that can be dedicated to the customer. Furthermore, costs attributable to fee/quoted services are not built up from detailed works and expenditure for these services was allocated as a total (bucket) of expenditure across the state. As such, customers over NSW are charged the same price for fee/quoted services. AER staff questioned whether the data for these services was reported by location, either by depot or asset management area. The DNSPs indicated expenditure data was not reported by location. They sought clarity from AER on the definitions for each fee/quoted service. AER staff agreed to discuss further with DNSP technical staff to clarify which services it would need to have expenditure data collected and the definition of those services.

### Metering

The DNSPs sought clarity of definition of meter model. AER staff confirmed that meter type as prescribed under NER would be appropriate. The DNSPs also sought clarity of how the location factor should be accounted for. AER staff considered that location factor should be selected consistently across each sheet and gave discretion to report location according to depot or asset management area.

1. ***Non-network expenditure***

AER staff indicated “recurrent” was used in the context of ordinary English usage of the word and meant expenditure that is ongoing in nature. While personal computers have been identified by the AER, the businesses are free to identify other recurrent expenditures and relevant cost drivers. Recurrent expenditure may be assesses via trend analysis. Material non-recurrent expenditures would likely be assessed by examining business cases. The intent would be all costs would be examined (opex and capex) given the ability to undertake expenditure via either opex or capex in these categories.

The NSPs queried if there was enough disaggregation in the IT categories and if they could disaggregate further below these categories. They indicated they would want to be able to record things such as associated incremental opex in relation to IT expenditure. AER staff indicated NSPs could disaggregate categories beyond those in the templates as long as they reconciled to those prescribed in the templates.

AER staff indicated they would clarify the reporting of non-network expenditure that would be classified as corporate or network overheads, as well as items that were both capex/ opex, in addition to expenditures that might otherwise be captured in direct cost categories (for example, land as part of augmentation works, and vehicles).

1. ***Vegetation management***

AER staff explained that the intention behind the concept of vegetation management zones was to account for differences in costs caused by regulations and volumes of work required to be performed. Collecting data on tree growth rates has been proposed as AER staff consider this to be a significant driver of determining tree cutting cycles and by extension the amount for tree trimming work required to be performed. AER staff invited comment on the contents of the vegetation management zones spreadsheet.

Endeavour Energy outlined what data they would be able to provide for these templates:

* For zones they would likely split their network by bushfire and non-bushfire risk areas.
* They do not delineate the vegetation in the network by type of tree.
* Sunshine is a cause of tree growth rate variability but data on this is not collected.
* Some data cannot be provided as it is not visible to Endeavour Energy due to vegetation management works being conducted by contractors.

Ausgrid commented on their contractual arrangements, noting that they tender out on a geographical basis. In the bidding stage, the contractors themselves select the geographical area they wish to work on. There are currently 3 contracted firms that engage in vegetation management work across their network.

Ausgrid commented that their contracts require work to be done for fixed fees. Tree growth rates are not factored into the price of these contract rates. Any change in the amount of vegetation work required to be done due to increased vegetation growth is borne by contractors. Ausgrid check if contractors have been compliant in undertaking their required work.

AER staff inquired what information NSPs collect from contractors, for example, key performance indicators for work completed. Ausgrid responded that they collect data on the number of trees trimmed and the number of kilometres of line with work undertaken. AER staff inquired how NSPs forecast the required amount of vegetation work required to be done. Essential Energy took this question on notice.

ActewAGL commented that for their network, vegetation management makes up a quarter of their opex costs and is a volatile expenditure. They commented they the types of tree species on their network do not vary and in turn this does not affect the required trimming work. Rainfall does vary, so they suggested it would be more useful to focus on the collection of rainfall data and consider the historical mean and standard deviation of rainfall across a NSPs network in an ex-post review of vegetation management costs. AER staff took this feedback on board.

Ausgrid commented on the proposed information to be collected in the vegetation management distribution sheet. They noted that they do collect data on the vegetation management activities proposed, and suggested that switching costs also be collected. They commented that they do not collect data by geographical areas (CBD/urban/rural) and would need to make assumptions to disaggregate on this basis. Endeavour Energy commented that the information they could provide was similar to Ausgrid’s. Essential Energy took the question of what data they collect for vegetation management work on notice.

TransGrid queried AER staff if vegetation management zones would apply to transmission networks. AER staff responded that it would, and noted that it was up to the NSP how many zones they wish to nominate; they may simply choose to have one.

AER staff asked TransGrid if there would be any issues in filling out the vegetation management activity sheet for transmission. TransGrid responded that they understood the purpose of collecting these activities and the purpose of the proposed geographical disaggregation (grassland/forest etc.), but noted it would be manual task to disaggregate these costs by type of geography. They noted that they collect their audit costs within their inspection costs.

Endeavour Energy noted that significant bushfires will affect the future amount of vegetation management work required to be done, and would need to be considered by the AER when assessing NSP expenditure. ActewAGL supported this point. AER staff took this feedback on board.

1. ***Maintenance and emergency response***

NSPs commented that they record expenditure for identified activities broken down into direct labour, materials, and fleet costs.

NSPs commented that they do not capture maintenance costs by asset subcategories as provided in the templates. For routine maintenance, these are inspection programs and costs are recorded by asset groups, but non-routine maintenance has not been mapped to assets historically. These non-routine expenditures can probably be aggregated or ‘rolled up’ to provide costs by asset groups.

On asset location data (urban/rural), DNSPs commented they can only identify geographic costs down to (and including) 11kV feeders.

NSPs also commented that the low level of detail in asset subcategories means assets are disaggregated in a way that would result in smaller sample sizes (and therefore less useful) for cost benchmarking.

ActewAGL commented that it has distribution substations as an asset class, but this is not among the template’s asset classes. There may also be merit in listing transformers in zone substations given their size/ materiality.

Endeavour Energy commented that it forecasts its maintenance expenditure by base-step-trend methods, and not by bottom-up. It does not have cost data by the asset categories indicated in the template. It is also unsure of the estimation techniques it can use to estimate historical data by asset groups.

TransGrid commented that the asset subcategories are too low a level of detail to be useful. Power transformers and reactive plant are typically rated on voltage and MVA rather than voltage and amps. Another example is that substation switchbays include “infrastructure” such as the bench and gantries as well as discrete items of equipment. TransGrid commented further that it is unsure how to fill in template columns for network overheads and corporate overheads. It also commented that substantial effort will be needed to break down major projects into individual quantities of equipment to be replaced each year.

TransGrid commented that it has fewer groups of large assets (compared to distribution) and it does forecast periodic maintenance costs using a bottom-up method. It also uses condition based maintenance and sets of inspection/diagnostic testing/maintenance schedules for the same equipment, which could make the identification of a simple maintenance interval irrelevant.

NSPs commented that their historic data on emergency response have not been collected based on asset types.

For emergency expenditure by causes, the AER clarified that the required data are classified according to the causes of the response and not by asset types. NSPs commented that they could forecast emergency response expenditure based on trend forecasts.

1. ***General Comments***

NSPs commented that for the next draft RIN template, all amendments based on the meeting with NSPs should be clearly indicated so that the NSPs would know what changes have been made. The DNSPs noted that more time could be spend liaising with them prior to finalising the draft RIN.

1. ***Next steps***

The AER will circulate draft minutes of the meeting with actions next week.

1. ***Actions***

### Overheads

1. AER to provide instructions on sheet indicating consistency with NSP’s existing cost allocation methods
2. AER to reconsider listing of superannuation as an overhead.

### Replacement capex

1. NSPs to further consider what would be appropriate rating bands, including potential involvement from the ENA and GridAustralia.
2. AER to consider including a “distribution substations” group, containing asset categories specific to substations.
3. NSPs to provide further consideration/ details on how repex vintage data could be estimated, particularly overcoming legacy data retention issues.

### Demand forecasting

1. AER staff to amend templates to improve their clarity. This includes work on the instructions, and including definitions in the demand sheets.
2. AER staff to provide a clear justification for requesting demand forecasts at all transmission connection points.

### Augmentations

1. DNSPs to provide feedback on ways to categorise augex for distribution substations and feeders, respectively, in order to arrive at more suitable classifications for such expenditure that can be applied across businesses.
2. NSPs to provide feedback on how they can break down augex project costs. In particular, the AER is interested in ascertaining whether NSPs can disaggregate augex project costs into major plant items (for example, transformers in substations, and overhead cable for subtransmission lines), and other labour and materials costs, as proposed in the indicative templates.
3. AER to confirm application of templates 4.12 and 4.13 to TNSPs, and consider exempting TNSPs from providing this data given materiality of augex for next reviews.
4. AER staff to amend templates to improve their clarity. This includes work on the instructions and definitions.

### Connections and customer driven works

1. The DNSPs to provide historical information on the deep augmentation cost, which included the recording of connection works by location.
2. AER staff to discuss further with DNSP technical staff to clarify which fee/ quoted services it would need to have expenditure data collected and the definition of those services.

### Non-network expenditure

1. AER staff to ensure templates clarify the reporting of expenditures as corporate or network overheads, items that were both capex/ opex, and expenditures that might otherwise be captured in direct cost categories.

### Vegetation management

1. Essential Energy to provide information on how forecast expenditures are derived
2. Essential Energy to provide information on what information could be provided for template 6.3

### Maintenance

1. AER staff to consider inserting distribution substation as an asset class, and also transformers in zone substations

### Emergency response

N/A

## Attachment A: Attendee list

### Sydney office

|  |  |
| --- | --- |
| **Name** | **Organisation** |
| Max Hooper (chair) | AER |
| Lawrence Irlam | AER |
| Cameron Smith | AER |
| Andrew Kingsmill | TransGrid |
| Catherine Waddell | Essential Energy |
| Terry Holmes | Essential Energy |
| Ed King | Ausgrid |
| Doug Pickering | Ausgrid |
| Patrick Duffy | Endeavour |
| Jon Hocking | Endeavour |
| Mike Martinson | Networks NSW |
| Zubin Meher-Homji | Networks NSW |

**Canberra office**

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| --- | --- |
| **Name** | **Organisation** |
| Chris Walker | ActewAGL |
| Blair Alexander | ActewAGL |
| Mike Schulzer | ActewAGL |
| Yili Zhu | AER |

### Melbourne office

|  |  |
| --- | --- |
| **Name** | **Organisation** |
| Paul Dunn | AER |
| Mark McLeish | AER |
| Esmond Smith | AER |
| Israel Del Mundo | AER |
| Jess Manahan | AER |
| Anthony Hynes | AER |

**Adelaide office (via phone)**

|  |  |
| --- | --- |
| **Name** | **Organisation** |
| Mark Wilson | AER |

1. AER staff incorrectly stated during the workshop that the augex model uses demand data in MW. The augex model, in fact, uses MVA data. Hence the AER will also require MVA data in order to populate the augex model. [↑](#footnote-ref-1)