CitiPower, Powercor Australia and SA Power Networks

JOINT SUBMISSION TO AER ON ECONOMIC BENCHMARKING OF ELECTRICITY DISTRIBUTION SERVICE PROVIDERS

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1 INTRODUCTION

CitiPower, Powercor Australia and SA Power Networks (**the Businesses**) welcome the opportunity to make this submission to the Australian Energy Regulator (**AER**) in response to the Better Regulation economic benchmarking workshops held between March and June 2013.

During the workshops the AER have encouraged stakeholders to put forward written submissions on matters of particular importance to the stakeholder. The Businesses consider that the AER should make public such written submissions so that the AER's process in developing the Better Regulation work programme is transparent and fully consultative.

The AER is in the process of developing economic benchmarking models that will be used to assess Distribution Network Service Providers' (**DNSP**) expenditure. Economic benchmarking models would form one of many expenditure assessment methods that would be employed by the AER and set out in the AER's Expenditure forecast assessment guideline (**Guideline**).

The AER has stated in the economic benchmarking workshops that it will not apply economic benchmarking outcomes in a deterministic manner to set revenue allowances. Notwithstanding this, economic benchmarking outcomes will have real commercial impacts on DNSPs and will influence their investment decisions. Further, the accuracy and robustness of the approach taken by the AER will potentially impact on both the financial viability of a DNSP and the performance of the broader economy which is dependent on DNSP investment to support economic growth.

It is important therefore that the development of economic benchmarks is not treated as a theoretical or academic exercise. Best endeavours should be used to ensure the models accurately represent each DNSP's costs and cost drivers. The input and output variables and the operating environment conditions used in the economic benchmarking models should be reflective of the actual costs incurred, the services provided, and the operating environments faced by each individual DNSP.

Given the inherent inability of economic benchmarking models to fully reflect the true cost drivers of all DNSPs, it is essential that the AER clearly acknowledge the limitations and assumptions of economic benchmarking in its annual benchmarking reports and to the extent they inform decisions when making regulatory determinations.

Furthermore, it is equally important that the AER ensure that all data used for benchmarking is audited and fully disclosed to DNSPs. All benchmarking models used by the AER must be transparent, replicable and provided in advance of publishing the annual benchmarking reports or decision papers (including draft decisions). This is required for the AER to meet its common law duty to afford procedural fairness and its obligations under the National Electricity Law (**NEL**) to ensure that a DNSP to which a determination applies is informed of material issues under consideration by the AER so that the opportunity exists to make informed submissions in respect of the AER's determination (s16(1)(b) of the NEL).

2 GUIDELINE SPECIFICATION

The Businesses' submission *'Joint submission on AER efficient forecast assessment guidelines issues paper'* to the AER made on 15 March 2013 stated that the primary purpose of the Guideline is to provide greater understanding and certainty to DNSP on the process and methods that the AER will undertake to assess forecast expenditure for the forthcoming regulatory reviews. The Businesses' submission recommended that the Guideline should:

- Explain each stage of the review process;
- Explain how the AER's process is consistent with the National Electricity Rules (**NER**) and National Electricity Objective (**NEO**);
- Explain how it will interact with the mechanisms in the expenditure incentives guideline;
- Specify which methods the AER will use to assess each expenditure category;
- Support the use of alternative methods that demonstrate the particular circumstances of a DNSP; and
- Provide transitional arrangements for the collection of new data under the Regulatory Information Notice (**RIN**) requirements.

Since the AER has indicated that it intends to employ economic benchmarking models as part of its expenditure assessment process for the forthcoming round of regulatory determinations, the Guideline must clearly describe in detail, including through well-defined decision trees, how they AER will use economic benchmarking when making its expenditure assessment in accordance with sections 6.5.6(e) and 6.5.7(e) of the NER. The Guideline should also be explicit in recognising that economic benchmarking will only be used for informative purposes, consistent with the AER's stated objectives in the recent benchmarking workshops.

3 MODEL SPECIFICATION

The AER's workshops on economic benchmarking have focussed on determining the various inputs, outputs and operating environment conditions that can be included in an economic benchmarking model and how these variables should be measured.

The AER have advised that only a limited number of variables will be included in the economic benchmarking modelling due to the data limitations. As discussed in the workshops, in order to define a consistent model, the selection of each input, output and operating environment condition is dependent upon each of the other variables to be included in the model. Therefore input, output and operating environment variables cannot be selected in isolation from each other.

Acknowledging these limitations, this submission sets out the Businesses' initial views for the variables that should be included in the economic benchmarking models. Notwithstanding the initial views set out in this submission, the Businesses consider that the AER must undertake extensive testing of the sensitivity of the proposed economic benchmarking models to alternative inputs, outputs and operating environment conditions and the weightings applied to the different variables. Model development and testing should be an iterative process undertaken in consultation with stakeholders prior to publication of benchmarking models.

3.1 OUTPUTS

Customer numbers

The number of customers served by DNSPs is an appropriate output for inclusion in economic benchmarking models. Customer numbers are an important driver of many overhead related costs and connection activity, and are a primary measure of network scale.

DNSPs incur differing levels of costs in servicing customers of differing classes (e.g. large business versus smaller residential) and locations (e.g. CBD, urban, rural and remote). Therefore the impact of disaggregating customer numbers by class and location should also be assessed as part of model testing.

System capacity and peak demand

System capacity should only be included as an output variable if it is scaled to account for utilisation of the network. Utilisation at each zone substation could be measured as the ratio of non-coincident peak demand divided by system capacity attributable to the zone substation.

Differences in planning standards and planning methodologies can lead to different levels of system capacity. Failure to account for utilisation would reward and create incentives for building inefficient levels of excess capacity. Excessive excess capacity does not benefit customers and should not be included as an output in economic benchmarking models.

If utilisation is not taken into account, then the Businesses strongly disagree with the use of system capacity as an output in the economic benchmarking model.

Forecast peak demand is an alternative proxy for system capacity. This is because DNSPs must provide the capacity necessary to accommodate expected peak demand. Unlike an unadjusted measure of system capacity, including peak demand would not reward or create incentives for DNSPs to invest in excess capacity.

Forecast peak demand will provide a better measure of DNSPs' outputs than actual demand. DNSPs must build the capacity of the network to accommodate forecasted peak demand. Forecasted peak demand takes account of the probability of peak demand events occurring which the network must be ready to accommodate to ensure reliable supply. DNSPs' forecasts of peak demand take into account a range of factors including maximum temperatures at different times of the day and over consecutive days, minimum overnight temperatures, different customer types and expected demand responses depending on the time and day of the week, the expected contributions of embedded generation and photovoltaic installations.

These are complex models that will differ across DNSPs operating in different conditions. It would therefore not be possible for the AER to develop a single model or weather variable that would adequately represent all the factors affecting peak demand for each individual DNSP. Therefore employing actual demand and a simple weather correction, such as daily temperature, will not adequately reflect expected peak demand for which the network is built to accommodate. The Businesses support the development and use of appropriately adjusted demand forecasts (i.e. taking into account the differing conditions across DNSPs) for each individual network.

Notwithstanding this, if actual peak demand is employed by the AER then it must take account of the probability of high peak demand events occurring, i.e. frontier rather than average historical peak demand should be measured over a period of greater than ten years.

Reliability

Reliability is a primary service provided by DNSPs and must be included as an output in the economic benchmarking model. An electricity distribution network is essentially a transport service whose performance should be measured by its ability to deliver supply from one end of the system to another.

The Businesses note that severe weather events can drive marked volatility in annual reliability performance for a DNSP, and thus it is important to use adjusted reliability performance outcomes which remove the effects of certain severe weather events. Similar adjustment processes are already used in the AER's Service Target Performance Incentive Schemes, where the effects of 'Major Event Days' are extracted from raw reliability statistics.

Economic Insights' proposed method of applying a negative weighting to the total minutes of customer outages appears appropriate. The Businesses note however that the proposed method is relatively untested.

Quality of supply

The quality of the supply of electricity transported through the network, i.e., voltage levels, harmonics, etc, is a very important service provided by DNSPs and can contribute to a material portion of costs, particularly in rural situations.

Ideally quality of supply should be included as an output in economic benchmarking models. However the Businesses recognise that at this stage the AER may not be able to include measures of quality of supply as an output, primarily due to data limitations.

Further, expenditure on quality of supply is expected to increase in Victoria due to the introduction of AMI meters. The significant increase in embedded generation is also expected to see increased expenditures on quality of supply. In future years, failure to take account of quality of supply in the benchmarking models will bias the efficiency analysis. In this situation, additional expenditure related to quality of supply improvements should therefore be excluded from the input measure in future benchmarking models.

This issue highlights the difficulty for economic benchmarking to accommodate step changes where the cost drivers are not reflected in the outputs and are not incurred by all DNSPs.

Throughput

The total volume of energy delivered through the network, 'throughput', is not a key cost driver and therefore is not an appropriate output to include in an economic benchmarking model of DNSPs.

The Businesses note that throughput is still being considered as a potential output by the AER because there is good quality data available and it has been used in previous studies. These are not acceptable reasons to include throughput. There may be good quality data on many random and irrelevant outputs however this does not mean that the activity is a key driver of DNSPs' costs.

The Businesses consider that the primary purpose of economic benchmarking is to understand the key cost drivers of DNSPs and to assess the extent to which DNSPs' costs are efficient relative to the key services that they provide. On this basis, the Businesses would be concerned if the AER started to include outputs simply because of data availability, particularly when it has been repeatedly noted by the AER that only a limited number of output variables may be included in the analysis.

Including throughput in economic benchmarking, in the absence of any robust cost driver relationship, will likely lead to biased results due to a spurious correlation between throughput and input costs. Relying on the results of such models will undermine the validity of benchmarks and potentially adversely impact the financial viability of DNSPs.

Furthermore, if throughput is highly correlated with customer numbers then including it will likely lead to over-specification and multicollinearity problems.

3.2 OPERATING ENVIRONMENT CONDITIONS

The inclusion of operating environment conditions is essential for ensuring 'like for like' comparisons amongst DNSPs. The nature of the service area in which DNSPs operate can have significant cost impacts. Adequately accounting for different operating environment conditions is of great importance in Australia where the operating environments of DNSPs are vastly different.

The AER has advised however that the economic benchmarking models will only be able to incorporate a small number of operating environment conditions, particularly for the first few years. On this basis, the Businesses consider that recognition of the impacts of the following operating environment conditions is essential.

Customer density

Customer density is important for capturing the geographic spread of customers in the service area of the DNSP. It is significantly more costly to service customers that are sparsely located. If a measure of customer density is not included in the economic benchmarking model then rural DNSPs would unjustly appear less efficient. However, as noted by Economic Insights, using a linear model to estimate the cost impact associated with customer density can inadvertently disadvantage dense urban networks that must incur greater costs associated with undergrounding assets. The Businesses therefore recommend that the AER consider a non-linear model for estimating the impact of customer density.

Bushfire risk

Bushfire risk is a significant cost driver in fire prone service areas. The Businesses emphasise that costs are incurred in the management of the risk of bushfires occurring irrespective of whether fires occur or not, indeed the observation of fewer and smaller fires could be indicative of good bushfire management.

The Businesses therefore consider that the measure of bushfire risk to be included in economic benchmarking must properly capture the extent of bushfire risk management required by some DNSPs by taking account of the risk of bushfires occurring in network areas. It is not sufficient to measure bush-fire outcomes.

If however the impacts of managing bushfire risk is not adequately allowed for in an operating environment condition in the economic benchmarking models then the costs associated with this should be excluded from the measure of operating input costs as discussed in section 3.3.

Vegetation encroachment

Vegetation encroachment is a significant cost driver for Powercor Australia and SA Power Networks. For example, approximately 40% of Powercor Australia's operating costs are attributable to vegetation management. The Businesses are required to ensure that vegetation is managed in accordance with the requirements of relevant safety regulations. Vegetation growth rates and the legislative requirements mean that the Businesses are not in control of the extent of vegetation that requires management in their network areas.

The cost drivers associated with vegetation management are very complex, including tree species, number of spans, climate conditions and jurisdictional clearance requirements which can result in significant cost differences across jurisdictions. For example, SA Power Networks' vegetation management costs are increased by the state specific legal requirement not to prune outside the defined buffer zone which requires SA Power Networks to perform more frequent vegetation management than may otherwise be required.

Given this complexity, including a simple measure of vegetation encroachment as an operating environment condition in the benchmarking model may not adequately adjust for significant vegetation management costs incurred by some DNSPs. For this reason, consideration should be given to excluding the costs associated with vegetation management from the measurement of operating input costs as discussed in section 3.3.

Whether included as an operating environment factor or excluded from the input costs, the proposed measurement should only account for the vegetation management that is the primary responsibility of DNSPs. For avoidance of doubt, it should not include situations where primary responsibility for vegetation management is with a council or private property owner.

Furthermore, the vegetation encroachment operating environment factor currently proposed (that is the percentage of line length requiring active vegetation management) will not adequately distinguish between DNSPs incurring very large or small vegetation management costs. For example, CitiPower and Powercor Australia would both have approximately 60-70% of line length classified as requiring active vegetation management. However, Powercor Australia's costs are approximately 15-16 times that of CitiPower. The Businesses therefore consider that the vegetation encroachment operating environment factor needs to be scaled to account for the proportion of undergrounding in the DNSP's network. For example, a suitable scaling approach may be to calculate the proportion of overhead lines to underground cables times the proportion of line requiring active vegetation management.

Weather

If a DNSP's forecast peak demand is employed as an output variable then this would, to some extent, capture the impact on the network capital costs of extreme heat days. Furthermore, if bushfire risk is appropriately controlled for as an operating environment condition then this will capture some of the operating costs associated with extreme heat days.

If however forecast peak demand is not employed as an output then it will be necessary for the AER to develop a more sophisticated operating environment variable which captures the complex relationship between weather and DNSPs costs.

Nonetheless, extreme heat days are also a significant driver of network faults and outages. Very hot days, for example, can increase network equipment failures through the combined effects of increased heat-related load and higher equipment operating temperatures. Very hot days also make it more difficult to rectify faults due to the number of outages reported on such days and in extreme situations, staff safety considerations (such as in bushfire situations). Hot weather can also reduce productivity and increase costs due to cancellation of planned work and staff stand-downs for health and safety reasons.

The Businesses are concerned that the proposed measurement of extreme heat days may provide for a relatively low temperature level. The Businesses would expect that the number of days reaching 40 degrees or more, and particularly across consecutive days, would provide a better measure of the impact of extreme heat days on DNSPs' costs.

Across the Businesses' networks, strong winds and lightning strikes are significant contributors to network failures and hence outages. The proposed wind variable (number of days with gusts exceeding 90km/hour) generally seems appropriate however further analysis and sensitivity testing may be required to assess whether the proposed measure adequately captures the impact of strong winds on network costs and performance. A measure for the quantum and severity of lightning strikes should also be considered.

Regardless of the weather variable chosen, it is also important that consideration is given to the range in weather variability that can occur across a network's service territory. Unlike other countries, many of Australia's DNSPs cover vast territories that have distinct weather zones. For example, the weather conditions in the north of the territories of Powercor Australia and SA Power Networks during summer can be up to 10 degrees hotter than that in the south. Consideration needs to be given to tracking weather conditions across different weather stations to reflect these diverse conditions and associated risks.

3.3 INPUTS

Operating and maintenance costs

The Businesses understand the AER is proposing to include all operating costs associated with network services in the measurement of input costs. The Businesses are concerned however that unlike in other jurisdictions, DNSPs in Victoria are responsible for transmission connection point planning. The costs of transmission connection point planning are material and should be removed from the measure of total operating costs. The role of transmission planning involves the internal and external costs associated with the obligation to direct augmentations, meet town planning obligations for the establishment of new transmission connection stations, undertaking regulatory investment tests, engaging in commercial negotiations for two connection agreements at each TNSP connection point (i.e. AEMO plus SPAusNet), and commercial negotiation with Agreements for each and every small or large transmission connection project.

The Businesses also consider that if the impacts associated with bushfire risk and vegetation management are not able to be adequately represented for in the benchmarking analysis via the operating environment conditions, then it is critical that the costs associated with these activities be removed from the calculation of total operating costs for the purposes of economic benchmarking.

Capital inputs and distribution network complexity

DNSPs across Australia are structured differently, receiving power at different voltages and transforming power at different voltages. These structural differences between DNSPs in Australia further highlight the difficulty of trying to benchmark DNSPs on a like for like basis.

The Businesses do not consider that these differences can be controlled for in a benchmarking analysis simply by removing capital inputs associated with higher voltage (i.e. 132kV) network assets. This is because since a DNSP is responsible for transporting electricity from the grid exit point to the consumer, if a 132kV line was not employed then a 66kV line would be required instead. Therefore there would still be capital and maintenance costs incurred whether or not a higher voltage or lower voltage line is used. Simply removing the costs associated with a 132kV line would significantly understate the costs of operating the network.

Benchmarking requires a consistent segregation between the roles played by TNSPs and DNSPs, rather than the carving out of higher voltages. Furthermore it is perfectly reasonable for DNSPs to distribute electricity with 132kV lines to serve a large number of customers in a dense urban area. Such DNSPs are likely to benefit from economies of scale in using higher voltage lines to transport electricity, such that fewer costs are incurred than would be if the electricity was transported the same distance using lower voltage lines. Furthermore the costs associated with the efficient use of 132kV should be controlled for by the higher measure of outputs included in the economic benchmarking model, i.e. higher customer numbers and customer density, as well as high peak demand forecasts.

4 DATA

It is essential that the AER ensure that all data used for benchmarking is audited and fully disclosed to affected parties. To ensure the data is consistent across DNSPs and across time, any assumptions underpinning the basis on which the data has been derived must also be disclosed. All models used by the AER should be transparent and replicable.

Access to the complete data sets and models considered and applied by the AER are necessary so that DNSPs are able to:

- Confirm the quality of the data;
- Test the models and run the models internally;
- Identify why their circumstances are different from the model assumptions; and
- Propose alternative models or assumptions that better explain their circumstances.

The AER must share the information and data collected and the detailed specification of the models used in order for benchmarking to be employed by the AER in its assessment of forecast expenditure. The AER has both a common law duty to afford procedural fairness and an obligation under the NEL to ensure that a DNSP to which a determination applies is informed of material issues under consideration by the AER in order to give the DNSP an opportunity to make submissions in respect of the AER's determination (s16(1)(b) of the NEL).

If the AER considers it will not be able to disclose some information then this information should not be used for benchmarking.

5 CONCLUDING REMARKS

The Businesses appreciate the opportunity to make this submission to the AER following the economic benchmarking workshops.

The Businesses encourage the AER to continue to engage with stakeholders in a transparent and consultative process throughout the development of its economic benchmarking models, including during the data collection and model sensitivity testing processes.

If you have any queries regarding this submission please do not hesitate to contact Megan Willcox on 03 9236 7048 or mwillcox@powercor.com.au.

Yours sincerely

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