Your reference:

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12 February 2015

Tasmanian Networks Pty Ltd
ABN 24 167 357 299
PO Box 606
Moonah TAS 7009

Mr Warwick Anderson
General Manager
Network Investment and Pricing
Australian Energy Regulator
GPO Box 3131
Canberra ACT 2601

Dear Mr Anderson

Submission in response to the NSW and ACT Draft Determinations

Tasmanian Networks Pty Ltd (**TasNetworks**) welcomes the opportunity to comment on the draft decisions made by the Australian Energy Regulator (**AER**) in relation to the New South Wales (**NSW**) and Australian Capital Territory (**ACT**) Network Service Providers (**NSP**).

TasNetworks was formed on 1 July 2014, by combining the operations of the transmission network service provider, Transend Networks, and the distribution network service provider Aurora Energy. TasNetworks is the sole provider of regulated transmission and distribution network services in the Tasmanian jurisdiction.

There are some matters that we wish to specifically highlight in this submission, such as the operations of incentive schemes and the use of benchmarking, but also believe the matters raised in our revised revenue proposal are also applicable to the NSW and ACT NSPs, specifically in relation to the AER's draft decisions for TasNetworks on:

- rate of return and taxation;
- treatment of provisions; and
- benchmarking.

If you have any queries on this submission please contact Chantal Hopwood on 0400 827 037 or via email at chantal.hopwood@tasnetworks.com.au.

Yours sincerely

Bess Clark
General Manager Strategy & Stakeholder Relations

Enclosure – Submission in response to the NSW and ACT Draft Determinations

1. Introduction

As you are aware, TasNetworks has accepted the AER's draft decision in relation to the transmission determination that will apply for 2015-2019 regulatory control period. In our response to the AER's draft decision, we made the following observations regarding benchmarking[1]:

> *"While we note the AER's conclusion that our expenditure efficiency compares favourably with other TNSPs, we are concerned that the AER understates the inherent limitations of benchmarking. It should be noted that benchmarking in relation to revenue determinations is still in its infancy, and substantial further work is required before it should play a significant role in the AER's decisions."*

The purpose of this submission is to expand on the above remarks in the context of the AER's draft determinations for TransGrid and the NSW and ACT distributors. We therefore welcome the opportunity to lodge this submission in response to the NSW and ACT draft determinations. Specifically, we comment in detail on the reports from the AER's consultant, Economic Insights[2] [3].

In addition to commenting on the use of benchmarking we also believe it is necessary to raise our concerns with regard to the treatment of incentive schemes by the AER.

2. Rate of return and taxation

It is essential that network companies earn a reasonable rate of return in order to support efficient investment and appropriate returns on previous investments.

Consistent with our transmission Revenue Proposal and Revised Revenue Proposal, we support the position of the independent expert reports submitted as part of our Revenue Proposal (appendix 20). The experts concluded that there is strong evidence to support a higher cost of equity than the estimate using the AER's parameter values. The experts also raised concerns regarding the AER's value for 'gamma'.

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1 TasNetworks, Tasmanian Revised Transmission Revenue Proposal (Regulatory control period 1 July 2015 - 30 June 2019), 6 January 2015, page 6.

2 Economic Insights, Economic Benchmarking Assessment of Operating Expenditure for NSW and ACT Electricity DNSPs, Report prepared for Australian Energy Regulator, 17 November 2014.

3 Economic Insights, Economic Benchmarking Assessment of Operating Expenditure for NSW and Tasmanian Electricity TNSPs, Report prepared for Australian Energy Regulator, 10 November 2014.

Therefore, while TasNetworks accepted the AER's draft decision in relation to the rate of return for transmission in our Revised Revenue Proposal, the views expressed by the independent experts we engaged remain valid. The position we have adopted in our transmission Reveue Proposal reflects the commercial pressures currently facing our transmission customers. TasNetworks' acceptance of the AER's rate of return approach in our particular circumstances should not imply that these circumstances are relevant to other networks. It will be important to revisit these issues over time to ensure TasNetworks earns a reasonable rate of return on its assets in the future.

3. Efficiency Benefit Sharing Scheme

We consider that the AER has not calculated Efficiency Benefit Scheme Scheme (EBSS) calculations correctly, as it has applied retrospective adjustments to the operations of these schemes. Additional to the matters raised by us in our revised revenue proposal, we again wish to raise the matter of retrospective adjustments to the operations of incentive schemes by the AER.

Changing the application of an EBSS retrospectively is contrary to the purpose of that scheme and does not fit with the application of incentive based regulation. As Ausgrid also notes in its revised regulatory proposal:

> *"…a retrospective exclusion would be contrary to the purpose of incentive based regulation and would not be consistent with 'fair sharing' of efficiency gains and losses under the EBSS. A DNSP cannot be incentivised by retrospective changes to a scheme because the actions that are sought to be incentivised or dis-incentivised have already occurred. Incentives are created by the promise of rewards or penalties. Retrospective changes to either the excluded cost categories or revisions of adjustments made by the DNSPs may instead dis-incentivise DNSPs going forward because there is a risk that the EBSS (or any other regulatory decision) as it is applied to the NSW DNSPs in the future may be different to how the AER represented that the EBSS would apply when it was introduced"* [4]

NSPs have no ability to alter the behaviour that is part of the incentive scheme where that behaviour has already occurred. This is particularly true of changes that are made to the excluded cost categories. It is not possible to modify these costs to take account of changes after the event and NSPs may have already made changes to these costs bases as a result of the perceived operations of the incentives being provided by the AER in its determination. This was also a matter raised by us in our revised revenue proposal relating to the treatment of provisions.

The decisions made by the AER relating to provisions should remain consistent across the application of that regulatory control period. Whilst the accounting treatment of any cost, such as provisions, may have differing regulatory interpretations within a determination, they should have a consistent application when forming part of an incentive scheme. Should the AER determine that costs associated with provisions will form a component within the EBSS at the commencement of a determination period; those costs should remain when an analysis of the outcomes of the scheme is undertaken at the end of the determination period.

[4] Ausgrid Revised Regulatory Proposal – January 2015, page 7

TasNetworks therefore considers that the AER has treated costs associated with provisions incorrectly in its draft decisions for all NSPs in November 2014.

4. Benchmarking

In making this submission, and as previously noted, we support the AER's increased focus on benchmarking. Benchmarking is a standard business practice, which facilitates operational and financial performance improvements over time. In this respect, there is no doubt that benchmarking has an important role to play in the effective management and regulation of electricity networks.

In order for efficiency benchmarking to be effective, however, it must isolate differences in company costs that are attributable to efficiency performance. For electricity networks, this is a highly complex task for numerous reasons, including because network companies differ materially from one another and because numerous environmental and operating factors affect network costs.

In a report for AusGrid, Frontier Economics highlights the importance of these issues in relation to benchmarking Australian Distribution Network Service Providers (**DNSP**)[5]:

> *"Based on our review of the Australian data and our experience of applying benchmarking techniques across Europe, it seems reasonable to say that the AER is regulating a sector with an unprecedented degree of heterogeneity of circumstance. For example, the two largest Australian DNSPs are Essential Energy and Ergon Energy. Essential Energy serves an area significantly greater than the land area of France, while Ergon Energy serves an area significantly greater than the land area of France, the UK and Spain combined. These statistics alone ought to give the AER pause to consider whether it is sensible to treat networks of such scale the same as networks that serve much smaller geographies.*
>
> *[…]*
>
> *Given the diversity of networks it regulates, it is unlikely to be possible to find or develop high level variables that are rich enough in information to capture well the heterogeneity between DNSPs. In order to get close to capturing all the relevant features in its model, it would likely have to include many more explanatory variables than it has. However, given the relatively small size of the Australian dataset, the AER would likely have insufficient degrees of freedom to model all the variables necessary.*
>
> *It is clear to us that, given the nature of the DNSPs it regulates, the AER will not be able to reflect all the important network and environmental characteristics in an econometric model."*

For the reasons set out in this submission, we agree with the concerns raised by Frontier Economics regarding the limitations of econometric modelling. The remainder of this submission is structured as follows:

- section 4.1 comments on the quality of the Australian dataset;
- section 4.2 discusses the use of international data;
- section 4.3 discusses model specification issues; and

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[5] Frontier Economics, Review of AER's econometric models and their application in the draft determination for Networks NSW, January 2015. AusGrid Revised Regulatory Proposal, Attachment 1.05, page 104.

- section 4.4 sets out concluding comments.

4.1 Quality issues with the Australian data

In relation to the quality of the AER's data collection for Transmission Network Service Provider (**TNSP**) benchmarking, Economic Insights provides an upbeat assessment[6]:

> *"While no dataset will likely ever be perfect, the AER's economic benchmarking RIN data provides the most consistent and thoroughly examined TNSP dataset yet assembled in Australia. […]*
>
> *In our assessment, the AER's economic benchmarking RIN data are also considerably more detailed, comprehensive and consistent than regulatory data in comparable countries, including the United States.*
>
> *Given the extensive process that has been gone through in forming the AER's economic benchmarking RIN database to ensure maximum consistency and comparability both across TNSPs and over time, the database is fit for the purpose of undertaking economic benchmarking to forecast future opex partial productivity growth rates."*

In relation to DNSP benchmarking, Economic Insights makes almost exactly the same comments, but also asserts that the data is sufficient to benchmark efficiency levels as well as productivity growth rates[7]:

> *"Given the extensive process that has been gone through in forming the AER's economic benchmarking RIN database to ensure maximum consistency and comparability both across DNSPs and over time, the database is* ***fit for the purpose of undertaking economic benchmarking to assess DNSP opex efficiency levels*** *and to estimate models that can be used to forecast future opex partial productivity growth rates." [Emphasis added.]*

Unfortunately, our experience in completing the Regulatory Information Notice (**RIN**) templates does not support Economic Insight's assessment. In particular, the Australian data set is adversely affected in three ways:

- **Different interpretations of the RIN requirements**

  Although each network company's RIN responses have been independently audited and assessed as being compliant, much of the data, whether it be at a category level or a disaggregated level, is not comparable between businesses.

- **Use of estimates where actual data is not available**

  The use of estimates in the absence of actual data, particularly in the earlier years for which the AER has collected information, is potentially a source of inaccuracy.

- **Differences in policies, standards and operating conditions**

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6 Economic Insights, Economic Benchmarking Assessment of Operating Expenditure for NSW and Tasmanian Electricity TNSPs, Report prepared for Australian Energy Regulator, 17 November 2014, page 3.

7 Economic Insights, Economic Benchmarking Assessment of Operating Expenditure for NSW and ACT Electricity DNSPs, Report prepared for Australian Energy Regulator, 17 November 2014, page 3.

Network companies have different capitalisation policies, maintenance standards, network voltages, vegetation management responsibilities, cost allocation methodologies, reliability standards and demarcation points between transmission and distribution.

Given the above data problems, in our view any benchmarking results based on RIN data must be assessed with caution.

4.2 Use of international data

Notwithstanding the issues arising from the Australian data, a further difficulty arises in relation to the inclusion of international data to benchmark DNSPs. Economic Insights explains its rationale for using international data in the following terms[8]:

> *"After a careful analysis of the economic benchmarking RIN data we concluded that there was insufficient variation in the data set to allow us to reliably estimate even a simple version of an opex cost function model (eg a Cobb–Douglas LSE model with three output variables and two operating environment variables).*
>
> *[…]*
>
> *We thus concluded that to obtain robust and reliable results from an econometric opex cost function analysis we needed to look to add additional cross sectional observations which meant drawing on overseas data, provided largely comparable DNSP data were available. Similar types of electricity DNSP productivity analysis have previously been undertaken in New Zealand, the Canadian province of Ontario and the United States. We therefore examined the scope to include data from these jurisdictions in the opex cost function analysis."*

Economic Insights' commentary on the robustness of the Australian data is significantly undermined by its decision to include data from other countries. Specifically, it is universally accepted that data must be prepared on a consistent basis in order for benchmarking to be effective. However, there is no reason to suppose that the data from other countries has been prepared on a basis that is consistent with the Australian data.

As explained by Economic Insights, its econometric modelling could not be completed unless the Australian data is combined with data from other countries. However, this decision is at odds with Economic Insights' view that[9]:

> *"the AER's economic benchmarking RIN data are also considerably more detailed, comprehensive and consistent than regulatory data in comparable countries, including the United States."*

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[8] Economic Insights, Economic Benchmarking Assessment of Operating Expenditure for NSW and ACT Electricity DNSPs, Report prepared for Australian Energy Regulator, 17 November 2014, pages 28 and 29.

[9] Ibid, page 3.

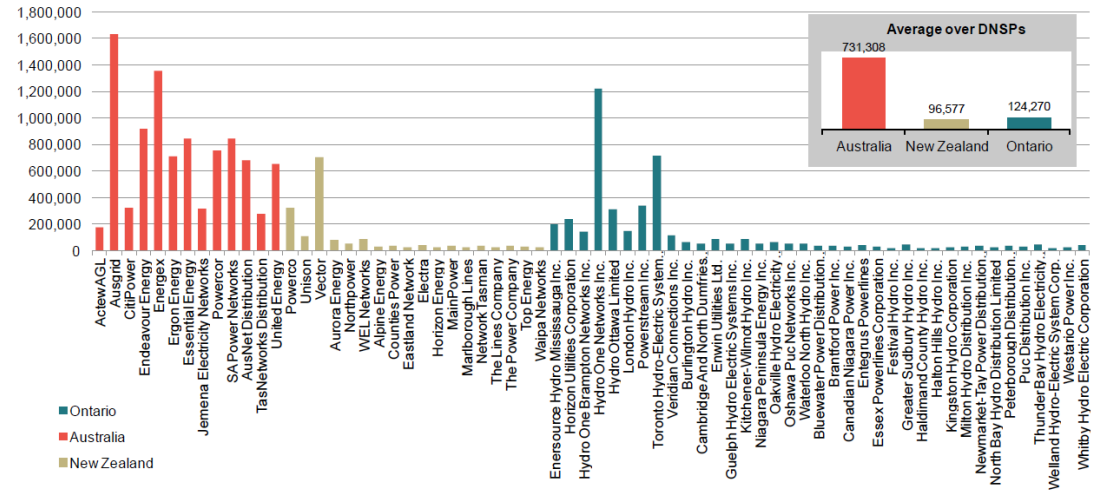
We support the AER's decision to collect consistent benchmarking data for Australian companies. However, the value of this effort is significantly undermined if that data is to be combined with data that has not been prepared on the same basis. To put the matter into context, the Australian data only comprises 19 per cent of Economic Insights' preferred data set[10].

In addition to these concerns, in a report for AusGrid, Frontier Economics explores the differences between distributors in Australia, Ontario and New Zealand in relation to:

- scale;
- climate and geography;
- spatial characteristics;
- output mix; and
- cost structures.

The analysis reveals stark differences between the Australian distributors and those from Canada and New Zealand. To illustrate this point, Figures 5 and 11 from Frontier Economics' report are reproduced below, which show customer numbers and share of underground assets for each DSNP and averages for each country.

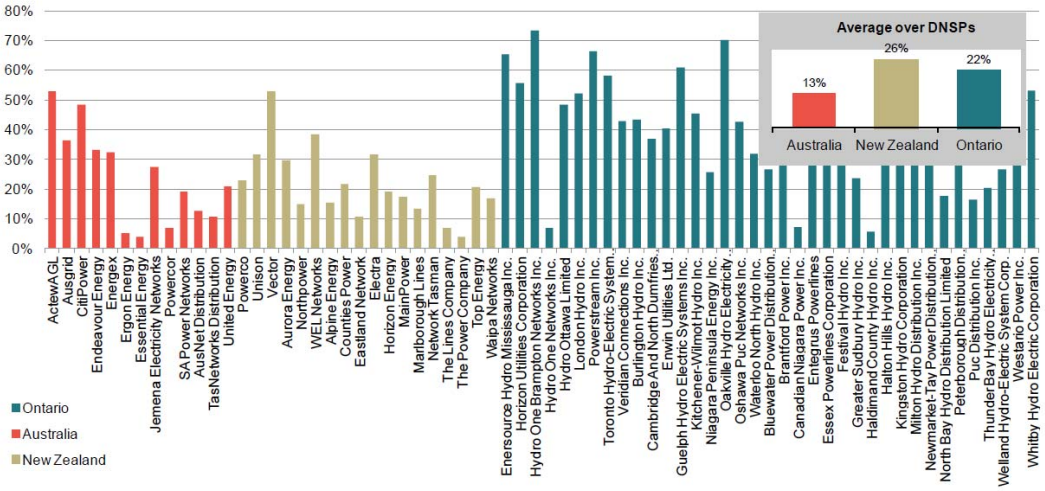
Figure 5: Customer numbers, 2013



Source: EI dataset, AER RIN data

10 Frontier Economics, Review of AER's econometric models and their application in the draft determination for Networks NSW, January 2015. AusGrid Revised Regulatory Proposal, Attachment 1.05, page 14.

Figure 11: Share of underground circuits, 2013



Source: EI dataset, AER RIN

The above figures show the Australian distributors typically served between six and seven times as many customers as distributors in New Zealand and Ontario. In addition, on average, Australian distribution networks have approximately 50 per cent fewer underground circuits. The data also reveals very large differences between Australian distributors – we will return to this issue in the next section.

Notwithstanding the significant issues associated with data consistency, the diversity in the operating conditions between distributors in Australia, New Zealand and Ontario casts doubt on the benchmarking conclusions. Economic Insights recognises the likelihood of significant differences between distributors in different countries. However, it argues that these concerns are addressed by its use of dummy variables[11]:

> *"It should be emphasised that the reason for the inclusion of the overseas data is to increase the sample size so as to obtain more robust estimates of the slope coefficients in the cost function. This will then allow us to undertake more robust opex efficiency comparisons among the Australian DNSPs. Benchmarking the Australian DNSPs against their international counterparts is not one of our objectives. We have hence explicitly included country–level dummy variables (for New Zealand and Ontario) in our cost functions to control for possible cross–country differences/inconsistencies in accounting definitions, price measures, regulatory and physical operating environments, etc. As a consequence, all cost efficiency scores obtained are relative to Australian best practice and NOT relative to international best practice."*

In our view, Economic Insights understates the impact of the international data on its conclusions. As Economic Insights explains, the inclusion of international data affects the coefficients in the cost function. Importantly, these coefficients determine Economic Insights' efficiency assessment of the Australian distributors.

We agree that Economic Insights is not setting an international benchmark, but this is beside the point. The critical issue is whether Economic Insights' efficiency assessment of the Australian distributors is reliable – and it is not, for the reasons already outlined.

11 Economic Insights, Economic Benchmarking Assessment of Operating Expenditure for NSW and ACT Electricity DNSPs, Report prepared for Australian Energy Regulator, 17 November 2014, page 31.

4.3 Robustness of modelled outcomes

If the AER is to rely on Economic Insights' benchmarking analysis, it must have confidence in the robustness of its conclusions. In our view, however, there are many aspects of Economic Insights' analysis that raise concerns regarding the reliability of its conclusions.

As an example, we draw attention to Economic Insights' approach to determining the output cost shares in its distribution benchmarking report. In a report for TransGrid, Houston Kemp explains why output shares are important in the MTFP analysis[12]:

> *"An MTFP index is a ratio of business outputs to inputs over time. The first step is therefore to select the inputs and outputs that characterise the operations of a business, hereafter referred to as the input and output specifications.*
>
> *In many industries, there may be obvious input and output specifications. For example, a coffee vendor has inputs of coffee, milk, labour and rent for premises. The coffee vendor might measure output simply in terms of the number of coffees sold – a logical choice given that the single ostensible output of the business is servings of coffee (albeit, perhaps of different sizes). Such an output specification would be consistent with our intuitive understanding of the output of a coffee business, and so could be adopted to measure a business' productivity over time.*
>
> *In contrast to the coffee vendor, an electricity transmission business is significantly more complex, particularly in relation to the specification of outputs."*
>
> *[…]*
>
> *"It is therefore necessary to determine the relative importance of each output variable to total production. Economic Insights achieves this through the estimation of a 'weight' on each of the output variables. The weights determine the relative contribution of each output variable to total production."*

Evidently, if the output weights change there may be a material effect on the multilateral total factor productivity (**MTFP**) analysis. This is because each company's MTFP is a measure of its output relative to its input – and the output will depend on the weights attributed to each of the output variables.

Economic Insights explains its approach to estimating the output weights in its DNSP benchmarking report as follows[13]:

> *"To operationalise our preferred five output specification in index number methods we have to next derive output cost–based weights. Attempts to derive weights for outputs (other than reliability) from a translog cost function were unsuccessful as some outputs had negative first order coefficients. We therefore derived output cost share weights using the simpler Leontief cost function approach used in Lawrence (2003). This method is described in appendix A. Estimated output cost shares were energy 12.8 per cent, ratcheted maximum demand 17.6 per cent, customer numbers 45.8 per cent and circuit length 23.8 per cent. Minutes off–supply were again treated as a negative output with a weight based on the value of consumer reliability (VCR)."*

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[12] Houston Kemp, Review of the AER transmission network benchmarking study & its application to setting TransGrid's opex rate of change, A report prepared for TransGrid, January 2015, page 3 and 5.

[13] Economic Insights, Economic Benchmarking Assessment of Operating Expenditure for NSW and ACT Electricity DNSPs, Report prepared for Australian Energy Regulator, 17 November 2014, page 12.

The first point to note is that Economic Insights' preferred model produced spurious results, which are described as "negative first-order coefficients". This means the model would regard an increase in maximum demand as a reduction in output. Clearly, this result would be nonsense. While we do not criticise Economic Insights for adopting a different model (the Leontief cost function), the spurious results initially obtained is a reminder that econometric modelling is prone to significant problems in relation to model specification, which are often difficult to overcome.

The second point to note is that the reported cost shares are:

- energy 12.8 per cent;
- ratcheted maximum demand 17.6 per cent;
- customer numbers 45.8 per cent; and
- circuit length 23.8 per cent.

It is instructive to compare these output weights with Economic Insights' conclusions for the New Zealand electricity distribution businesses, which are shown in Table 1 (reproduced below) of its 2014 report for the Commerce Commission[14].

Table 1: **EDB output specifications examined**

Description	*Components included and weight applied*	*Weighting basis*
2–outputs	Customer nos (46%), Circuit length (54%)	Output cost share
3–outputs	Energy (22%), System capacity (kVA*kms) (49%), Customer nos (29%)	Output cost share
4–outputs	Energy (15%), Ratcheted maximum demand (15%), Customer nos (23%), Circuit length (47%)	Output cost share

It is evident from the above table that the output weights for the Australian businesses differ materially from those that were considered appropriate for the New Zealand distributors:

- Australian customer numbers were weighted 45.8 per cent compared to 23 per cent for New Zealand; and
- Australian circuit length was weighted 23.8 per cent compared to 47 per cent for New Zealand.

The apparent difference in the weightings for Australian and New Zealand distributors casts a further shadow over the decision to combine Australian and international data. Furthermore, it raises an important question regarding the sensitivity or robustness of Economic Insights' efficiency assessments to changes in model specifications and input data.

In its report for TransGrid, Houston Kemp highlight the sensitivity of the output weights to relatively modest changes in the dataset. For example, it is noted that the exclusion of 2013 results in the following significant changes in the output weighting:

- from 21.4 per cent to 12.2 per cent for energy throughput;
- from 27.8 per cent to 7.9 per cent for weighted connections;
- from 22.1 per cent to 41.0 per cent for ratcheted maximum demand; and

[14] Economic Insights, Electricity Distribution Industry Productivity Analysis: 1996–2014, Report prepared for Commerce Commission, 30 October 2014, page 12.

- from 28.7 per cent to 38.9 per cent for circuit length.

More broadly, Frontier Economics highlight the importance of model specification in their report for AusGrid. In their opinion, the significant diversity (referred to as 'latent heterogeneity') across the Australian distributors may explain most of the apparent cost differences. Frontier Economics explains that a different model specification that accounts for latent heterogeneity would significantly undermine Economic Insights' conclusions[15]:

> *"Put simply, specifying a model that captures latent heterogeneity, not just across countries, but also within countries, reduces the measured inefficiency of the Australian DNSPs to negligible levels."*

We also note that in a recent study of the distribution businesses in Ontario, it was observed that it is not possible to rank the efficiency of individual distribution businesses confidently[16]:

> *"It is important to distinguish between the accuracy with which industry-wide productivity factors can be estimated, and the accuracy with which one can assess relative efficiencies of individual distributors. Though both can be obtained from the same model, the former is an average effect and can therefore be estimated with much greater precision than the latter, which involves a separate prediction for each individual distributor. Further, our analysis of the data reveals that even modest variations in model specification, e.g., in the selection of business condition variables, can lead to substantial changes in distributor rankings and migration of individual distributors to other efficiency cohorts. Given the complexities of the distribution sector and its data limitations, it is highly probable that such variations will be present."*

Given the above observations, our view is that significant questions remain regarding the robustness of Economic Insights' conclusions.

4.4 Concluding comments

We note that Economic Insights expresses caution regarding its efficiency assessment for TNSPs. However, for the reasons set out in this submission, we do not agree that any more confidence should be given to the results for DNSPs[17]:

> *"While economic benchmarking of distribution network service providers (DNSPs) is relatively mature and has a long history, there have been very few economic benchmarking studies undertaken of TNSPs. Economic benchmarking of transmission activities is in its relative infancy compared to distribution. As a result, in this report we do not apply the above techniques to assess the base year efficiency of TNSPs. We present an illustrative set of MTFP results using an output specification analogous to our preferred specification for DNSPs but caution against drawing strong inferences about TNSP efficiency levels from these results."*

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15 Frontier Economics, Review of AER's econometric models and their application in the draft determination for Networks NSW, January 2015. AusGrid Revised Regulatory Proposal, Attachment 1.05, page 22.

16 Is Productivity Growth in Electricity Distribution Negative? An Empirical Analysis Using Ontario Data, Dimitrios Dimitropoulos and Adonis Yatchew, Department of Economics, University of Toronto, 30 November 2014, page 37.

17 Economic Benchmarking Assessment of Operating Expenditure for NSW and Tasmanian Electricity TNSPs, Report prepared for Australian Energy Regulator, 10 November 2014, page 2.

We also draw attention to the magnitude of the average efficiency gap identified by Economic Insights[18]:

> *"We note that the mean SFA CD cost efficiency score is 0.68, indicating that the average DNSP could potentially reduce its opex by approximately 32 per cent and still produce the same level of output (assuming that all operating environment factors have been captured by the model). We also observe that the efficiency scores across all three econometric models are relatively close to each other for each DNSP. This similarity in results, despite the differing methods used, further reinforces our confidence in the results."*

As a practical matter, it would be difficult for the average DNSP reduce its operating expenditure by 32 per cent and sustain safety compliance and reliability outcomes. Furthermore, the adverse consequences of attempting to impose such a reduction would be profound. In our view, substantial further work is required before regulatory decisions can rely on the output from complex and inherently uncertain econometric models.

[18] Ibid, page 37.