Ergon Energy Corporation Limited

Submission on the *Draft Electricity Distribution Network Service Providers – 2014 Annual Benchmarking Report*

Australian Energy Regulator

22 August 2014

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This submission, which is available for publication, is made by:

Ergon Energy Corporation Limited
Level 8, 420 Flinders Street
PO Box 1090
Townsville Qld 4810

Enquiries or further communications should be directed to:

Jenny Doyle
Group Manager Regulatory Affairs
Ergon Energy Corporation Limited
Email: jenny.doyle@ergon.com.au
Ph: (07) 3851 6416
Mobile: 0427 156 897

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1. INTRODUCTION

Ergon Energy Corporation Limited (Ergon Energy) welcomes the opportunity to provide comment to the Australian Energy Regulator (AER) on its *Draft Electricity Distribution Network Service Providers – 2014 Annual Benchmarking Report* (Draft Benchmarking Report). This submission is provided by Ergon Energy, in its capacity as a Distribution Network Service Provider (DNSP) in Queensland.

It is noted that the AER's Draft Benchmarking Report has been developed using benchmarking of data consulted on and collected using only Economic Benchmarking regulatory information notices (RINs) issued to DNSPs following the development and release of the Expenditure Forecast Assessment Guideline (29 November 2013) under the Better Regulation program.

Separately, in dissemination of Category Analysis RIN benchmarking analysis[1] the AER noted that while they will be unable to meet the timeframes for its inaugural 2014 Annual Benchmarking Report, the Category Analysis RIN benchmarking analysis (supplemented by revised historic and new data for 2013-14 over the coming months) will form part of the 2015 report. The AER also note the Category Analysis benchmarking measures will instead be considered as part of the regulatory determination process.

In response to the AER's invitation to provide comments on the Draft Benchmarking Report, including the memorandum from the AER's consultant, Economic Insights, on the development of the multilateral total factor productivity (MTFP) analysis presented in the report, Ergon Energy has focused on key areas of concern and matters of fact.

However, Ergon Energy again reiterates concerns raised in prior submissions that benchmarking expenditure assessments (regardless of the technique/s chosen) across DNSPs in Australia, using high level ratios can be misleading, unless the underlying drivers, inherent costs and cost allocation practices of the quite different DNSP businesses are taken into account.

The comparison of expenditure through economic benchmarking techniques is further complicated by the cyclic nature of regulatory determinations, which requires reliance on data from other networks that may either be out of date or not yet available. The long-term nature of network assets, lengthy investment cycles, frequent updates to accounting and reporting structures in the context of relatively short regulatory control periods and minimal historical data can distort benchmarking results, in addition to complicating the evaluation of what productivity improvements may be possible without undermining the security and reliability of the network.

Furthermore, in responding to RINs, whilst DNSPs would have used best endeavours to determine estimated values in response to RINs, the inherent limitations of such estimated data vis-a-vis actual data should be recognised. This is particularly important given the ambiguous nature of drafting of some of the RIN requirements; and, given Basis of Preparations may not allow for a fully comparative approach to estimates to be assumed.

The greatest challenge in attempting to benchmark is to derive a data set that fairly and even-handedly allows comparisons between DNSPs that are not operating in the same environment.

[1] Category analysis benchmarking metrics - for NSP comment, Friday 15 August 2014

Although Ergon Energy acknowledges merit in continuous measurement and comparison for the purposes of improvement and innovation, Ergon Energy expresses ongoing concerns relating to use and publication of conclusions drawn from information generated by benchmarking techniques. Further, the output specification applied to the benchmark data is crucial, with the selection of one economic model over another resulting in subjective decision-making and again increasing the risk of regulatory error.

This said, Ergon Energy continues to support a consultative approach aimed at improving the understanding of the AER's expenditure assessment methods. This is particularly important at this time as we prepare to submit our Regulatory Proposal by the end of October 2014.

In continuation of the interactive approach being adopted by the AER, and in the essence of procedural fairness, Ergon Energy requests a review of and right for response on, proposed revisions to the Draft Benchmarking Report and underlying data used as well as economic modelling techniques, before publishing as a final Report.

2. COMMENTS ON DRAFT REPORT

Ergon Energy makes the following comments with respect to the AER's Draft Benchmarking Report, including the memorandum from the AER's consultant, Economic Insights, on the development of the MTFP analysis presented in the report.

1.1. Economic Benchmarking Data Set

Over and above general concerns raised above, Ergon Energy notes that the complexity of electricity distribution businesses has increased over time, with complexities varying by jurisdiction and individual business. Ergon Energy questions the true comparability of data, and lack of standardisation across the industry statistics presented in the Draft Benchmarking Report.

Ergon Energy notes that recent exogenous events such as Solar Feed-in Tariffs (driven by government policy, resulting in rapid solar uptake) and one-off impacts from reforms and restructuring are skewing economic benchmarking data unless otherwise adjusted for. These are significant impacts that were not present in the early years modelled, and are being interpreted by the AER via their inclusion in the MTFP model in outer years, to represent a decline in productivity.

The spectacular growth of solar photovoltaic (PV) panels has been partly attributed to the State Government's original 44 cents per kilowatt hour feed-in-tariff (FIT). The number of premises with PV panels on Ergon Energy's network has seen a 50-fold increase in five years and in the 2013-14 financial year, the cost of FIT payments had grown to $118 million (included in OPEX). As at 30 June 2014, over 97,000 customers had connected solar PV. This incorporates 16% of Ergon Energy's entire residential customer base, accounting for approximately 21% of all detached residential houses in regional Queensland. At the same time, the average domestic residential customer (without solar) has dropped their energy use from 7789kwh to 6396kwh, an 18 per cent reduction over five years.

Some of the engineering data also appears to have a different basis of preparation and calculation across businesses. Some of this data is significantly material to the MTFP results.

It is also noted that the AER has collected information from the businesses on 18 different environmental variables to adjust the MTFP results, yet in the draft benchmarking approach no such adjustment has been made. The claim is that the influence is negligible. Given that a weakness of MTFP is its inability to account for differences in the conditions of the measured businesses, and the concerns with the bias in the model specification (refer below), some attempt should be made to account for the influence of different environmental variables.

Ergon Energy suggests that further work remains in aligning data across DNSPs to a (more) standardised, comparable data set, before its use in an application such as MTFP. This is despite the AER's attempt in drafting of RIN requirements to collect comparable data across NSPs. Even then, it should be recognised that differences can arise in a variety of areas including accounting, capitalisation and cost allocation.

Reliability Data Error

Ergon Energy has identified an error in the economic benchmarking data set used by the AER. Specifically, Ergon Energy notes that in the reliability section (page 53) of the AER's Draft Benchmarking Report the comment is made that,

> "*when benchmarking reliability, we have excluded the effect of large, abnormal outage events. This is because these events can be unforeseeable, uncontrollable and may affect measured performance*."

However, on investigation, the AERs presentation of "SAIDI excluding MED and excluded outages" and "SAIFI excluding MED and excluded outages" incorrectly draw upon averages of performance data that is inclusive of MEDs. The AER should instead be calculating five year averages of performance data that excludes all allowable exclusions of the STPIS including the MEDs. Of note, in the Analysis sheet of the EBT DNSP PPI workbook, the AER (more correctly) calculates a five year average of CAIDI on the basis of performance excluding MEDs and excludable outages.

In any case, Ergon Energy notes that network reliability measures can also be adversely impacted by events (days) where daily SAIDI/SAIFI reach close to MED thresholds, but are not sufficient to qualify as a MED. Such extreme weather event days have had a significant adverse impact on Ergon Energy's network reliability measures across all feeder categories over the years, especially the outage duration (SAIDI).

Ergon Energy also draws the AER's attention to an error in the data presented in Figure 33. It is believed the AER intended to display interruption data, however duration data has been utilised.

1.2. Model Specifications

Model specification concerns have been raised previously during the consultation period for the AER's Expenditure Forecast Assessment Guidelines. Specifically, the selection of inputs and outputs for an MTFP model to measure efficiency across the diverse group of Australian DNSPs will always favour some and induce bias against others.

There are several issues with the specification for the MTFP analysis presented by the AER and explained within the Economic Insights memorandum. In summary, these can be categorised as:

- The appropriate inputs and outputs for modelling NSP productivity vary by NSP type – and are not consistent across the National Electricity Market (NEM);
- The variability in the results of the specifications tested demonstrates the inadequacy of the method to provide robust estimations of actual productivity differences; and
- The method of testing and accepting a particular model specification appears to have been driven by the data available and a subjective view of whether the results align with the expectations of the practitioner.

Each of these issues is expanded upon further, in the following sections. Ergon Energy also comments on the use of VCR for weighting reliability output.

1.2.1 Selection of Model Specifications is Subjective

Ergon Energy reiterates concerns made in prior submissions, that there is no consistent, appropriate, industry-wide specification of inputs and outputs for an electricity distribution network.

In response to the AER Expenditure Forecast Assessment Guidelines, Huegin Consulting Group (on behalf of Ergon Energy and Energex) raised several issues with the specification of models for MTFP for use in the Australian context. The continuing debate as to appropriate input and output variables and the sensitivity of the outcome to the specification were both discussed specifically (extracted below).

> *"….the inputs and outputs of an electricity network have been a topic of debate for a considerable amount of time; given the sensitivity of the models to the specification, results must be considered in the context of appropriate error tolerances."*[2]

The AER have asked for feedback on the preference of other models identified by Economic Insights over the selected model. Ergon Energy's view, however, is that none of the models is appropriate for comparing the businesses in the sample due to the inherent differences in their design and operating conditions. Any model specification will introduce a bias against a particular NSP or group of NSPs. The process of discarding the original preferred specification and the testing of multiple configurations highlights this issue.

The absence of any adjustment for operating conditions through second stage regression not only exacerbates this issue of bias (MTFP cannot account for differences in operating conditions or scale), but it is also against the original advice of the AER and opens the considerable effort of collecting environmental variable data through the RINs for that very purpose up to question.

1.2.2 Inadequate Method to provide Robust Estimations of Productivity Differences

Ergon Energy submits the variability in results of the specifications tested demonstrates the inadequacy of the method chosen to provide robust estimations of actual productivity differences.

The significant variation in the results through minor model specification changes illustrates the heterogeneity of the businesses within the sample. With each input or output variable change, the

[2] Huegin Consulting Group, Submission on the AER Expenditure Guidelines, 20 September 2013

results change markedly, depending upon the mix and relationship of and between variables for each business – which varies by location, size and type.

Based on analysis undertaken (testing the various combinations of input and output variable specifications), Ergon Energy can rank anywhere between 4th and 13th in the outturn MTFP analysis. This is an indication that the majority of the difference in productivity results of a single model is caused by statistical noise and error associated with a heterogeneous sample of businesses.

Rather than conclude that this significant sensitivity illustrates problems with identifying a single model for the entire industry, the AER has assumed that the discarded models are waypoints on the path to finding the most appropriate model specification. Ergon Energy believes that this approach is flawed, as it relies upon the subjective opinion of the practitioner and does not allow for differences in the cost functions of different DNSPs.

Our view is that no single model will ever fit all 13 distribution business' circumstances. This leaves possibly two options:

1. Adjust the results to correct for the bias; or
2. Split the businesses into groups of like-for-like types/conditions.

Option two is a common approach in Europe but they also have lots of small, similar networks. The problem is that splitting into groups makes the sample size too small in Australia making this not a viable option. Therefore this means the best option is to adjust the results to correct for bias. Regardless of which specification is chosen, it needs to be appropriately adjusted for anomalies that aren't productivity/efficiency differences through:

1. Ensuring the use of appropriate units of measurement;
2. Adjusting for factors beyond the DNSPs control (such as, in this case, the network design); and/or
3. Use multiple frontiers to compare businesses with their true peers.

1.2.3 Biased Method for Testing and Discarding / Accepting Model Specifications

The method of testing and accepting a particular model specification appears to have been driven by the data available and a subjective view of whether the results align with the expectations of the practitioner

Even if one were to accept that the variation in the results through different model specifications are able to be interpreted as the relative validity of the model itself, the method of relying upon the data to experiment with different model specifications and then retrospectively justifying theoretically the inclusion of input and output variables is flawed.

Again, Huegin Consulting Group raised this issue in its submission on behalf of Ergon Energy (and Energex), as extracted below:

> *"The random, experimental nature in which the models are constructed - by finding the model that best fits the available data - leads to a model of best fit at that point in time, rather than a robust, one-size-fits-all formula for any industry participant."*[3]

In justifying its selection of the model used in the AER's benchmarking analysis Economic Insights wrote:

> *"…the results obtained using output specification #4 did not appear to favour any particular type of DNSP with both rural and urban, and small and large DNSPs interspersed"*[4]

The drivers of differences between the DNSPs are much more diverse and complex than just size and location (urban vs rural). Notwithstanding this overly simplified approach to testing a small range of the many model specifications available, the criterion for acceptance or rejection of a model has been based solely on the observation and opinion of the practitioner. Using observations of the results of different models to choose which model specification is valid will result in the practitioner selecting the model that best fits their a priori expectations. That is, the results that confirm the prior beliefs of the regulator are used whilst those that don't are discarded.

Further, Ergon Energy will always face bias in such an approach, as any model that places Ergon Energy (and/or other similar businesses) near the frontier will be discarded on the basis of favouring rural businesses.

1.2.4 Use of VCR for Weighting Reliability Output

The AER has specifically asked for feedback on the appropriate value of customer reliability (VCR) for use in weighting the reliability output in the MTFP model. The AER noted that the Australian Energy Market Operator is currently reviewing the VCR and in their draft Economic Benchmarking report, they have adopted Economic Insight's recommendation of a reduced VCR to determine the weight of the reliability output in the MTFP model. Specifically, they have halved the VCR for future application.

Incorporating reliability as an output in MTFP is an extremely challenging undertaking, acknowledged by Economic Insights themselves in the exclusion of reliability as a viable output for Total Factor Productivity in a study of electricity distribution productivity in New Zealand in 2009:

> *"Previous attempts to convert reliability measures into a format consistent with the productivity framework have proven unsuccessful and so more work is required on this task. An additional important but problematic issue is the one of what output weight to assign to a measure of reliability in calculating total output within a TFP study*."[5]

This challenge is amplified in a jurisdiction such as Australia where large, rural networks have high and variable SAIDI results. The primary challenge is the volatility of the variable in comparison to the more consistent, incrementally growing variables in the model and its inclusion can produce skewed or even negative weights.

Ergon Energy believes that the VCR applied in the model should be that which existed during the period of analysis (2006 - 2013), given the reliability measure is in the context of past performance.

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[3] Huegin Consulting Group, Submission on the AER Expenditure Guidelines, 20 September 2013
[4] Economic Insights Memo on MTFP Results, July 2014
[5] Electricity Distribution Industry Productivity Analysis: 1996-2008, September 2009