



Submission to the AER on its Preliminary Determination Base Year Opex



Summary

This document sets out Ergon Energy's response to the Australian Energy Regulator (AER) on base year opex.

Ergon Energy does not accept the AER's Preliminary Determination in relation to:

- The use of a single point estimate for determining the efficiency of Ergon Energy's base year opex
- The model utilised by the AER to determine opex efficiency for DNSPs
- The alternate forecast proposed for Ergon Energy's opex for the 2015-20 regulatory period
- The sufficiency with which our proposal was considered when making a determination of prudence and efficiency of either the base year opex or the opex forecast; and
- The degree of consideration of the relevant National Electricity Rules.

Ergon Energy has updated the opex forecast for the latest available data and information.

Outcomes

Ergon Energy maintains that its revealed base year opex, adjusted for the appropriate changes, is efficient and should be used as the starting point for the 2015-20 opex forecast.

Ergon Energy has responded to issues raised by the AER in the preliminary determination and has provided additional information in support of our claim of efficiency.

The AER's econometric model utilised for benchmarking DNSPs has not been rigorously tested and is not appropriate for making mechanistic determinations regarding DNSP opex efficiency. In addition the model does not give due consideration to the operating circumstances of Ergon Energy that impact on cost.

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1. Introduction

The AER has not properly evaluated our base year opex and has incorrectly and inappropriately determined that Ergon Energy's out-turn costs are materially inefficient. Further, the basis upon which the AER's substitute forecast was determined suffers from the same logical and analytical deficiencies inherent in the judgement of our base year opex. We also contend that our operating expenditure forecast was not appropriately considered in the process of rejecting and substituting our proposal.

The AER's preliminary decision regarding both base year opex and forecast opex is centered on one premise; the single point estimate of efficiency calculated by the Economic Insights SFA model. Ergon Energy believes the AER's reference to this single point to determine efficiency, without consideration of its veracity or relevant weight within the regulatory framework, is flawed and has led to an erroneous outcome for Ergon.

We are confident that a firm that performs below this level is therefore spending in a manner that does not reasonably reflect the opex criteria. An adjustment back to this appropriately conservative point is sufficient to remove material inefficiency¹

Ergon Energy demonstrate below that if the AER had at least considered the confidence intervals and error bands associated with its own single point estimate, Ergon Energy's revealed costs would be determined as being within a reasonable efficiency range.

Ergon Energy also contend that the AER has inappropriately used its benchmarking outcomes for the purposes of determining a substitute forecast in place of appropriately considering Ergon Energy's proposal and submission in full. The AER stated in their preliminary determination that it had not formed a view on Ergon's proposal, indicating the lack of consideration given to the submission. This is contrary to the AEMC's final determination regarding the relevance of both the DNSPs proposal and benchmarking, in determining opex and capex allowances.

The Commission is of the view that the removal of the "individual circumstances" clause [paragraph 6.12.3(f)] does not enable the AER to disregard the circumstances of a NSP in making a decision on capex and opex allowances. Benchmarking is but one tool the AER can utilise to assess NSPs' proposals. It is not a substitute for the role of the NSP's proposal.²

The AER's preliminary determination discusses benchmarking at length but gives little attention to the other requirements within the National Electricity Rules, highlighting the AER's preoccupation with applying the benchmarking results without due consideration of other relevant factors.

Ergon Energy believes the AER's use of its economic benchmarking outcomes, to the exclusion of other assessment techniques or relevant and pertinent information in determining an efficient base

¹ Attachment 7 – Operating expenditure | Ergon Energy preliminary determination 2015–20, p7-26

² AEMC final determination, p107

year for Ergon Energy, has not resulted in a forecast of opex that gives due consideration to the National Electricity Rules (NER) and further to this Ergon Energy do not believe the AER's preliminary decision is compliant with either the National Electricity Objectives (NEO) or the National Electricity Law (NEL).

Ergon Energy maintains that the adjusted base year opex and forecast opex for the 2015-20 regulatory period reflects efficient and prudent expenditure required by Ergon to meet its NER requirements and to affect both the pricing principles of the NEL and delivery of the NEO. Further, as demonstrated by Huegin's latest report, Ergon Energy's revised forecast operating expenditure, using more up to date information, including a more current base year demonstrates improvements in overall opex efficiency and associated productivity gain greater than any other NEM business.

2. AER determination places undue confidence in a single point estimate

The AER has placed undue confidence in the veracity of a single point estimate of efficiency generated from their econometric model in rejecting the Ergon Energy base year opex. This reliance on the single point estimate of efficiency from the Economic Insights SFA CD econometric model then - incorrectly and inappropriately - informs all subsequent analyses and decisions.

The evidence does not support the level of reliance by the AER, as we outline below. The Australian Competition and Consumer Commission (ACCC) in a recent report on Benchmarking noted:

"Reflecting current practice and existing expertise, benchmarking should initially be used as an informative tool rather than a determinative one. For example, it can be used as a starting point for a conversation with regulated utilities about the level of operating and/or capital expenditures being incurred and proposed. A more sophisticated³ application could emerge over time."

Similarly, in a report for Grid Australia, Greg Houston (then of NERA Consulting), expressed his concerns for single point estimates of efficiency:

If the AER were mechanistically to use the results of benchmarking as a reason to disallow a proportion of operating costs, there is a significant risk that it would be acting on an arbitrary basis without proper evidence. Such approaches run counter to best practice economic regulation since they reduce the process of setting revenues to a series of subjective judgements, undermine the assurance of cost recovery, and thereby weaken any incentives for efficient behaviour⁴.

³ Australian Competition and Consumer Commission, Benchmarking Opex and Capex in Energy Networks Working Paper no.6, May 2012, p14

⁴ Grid Australia submission on AER draft expenditure forecast assessment Guidelines, NERA holistic benchmarking report, p31

2.1. All evidence (primary and secondary) driven by a single point estimate

The AEMC, when establishing new Rules clarifying the discretion of the regulator, places a very strong emphasis on the evidence put forward by the NSP as part of the regulatory determination process:

“The NSP's proposal is necessarily the procedural starting point for the AER to determine a capex or opex allowance [because] [t]he NSP has the most experience in how a network should be run, as well as holding all of the data on past performance of its network, and is therefore in the best position to make judgments about what expenditure will be required in the future. Indeed, the NSP's proposal will in most cases be the most significant input into the AER's decision⁵”.

While it was the starting point for the assessment, the AER stated that it did not form a view on the specific contents of Ergon Energy's proposal. This, combined with the undue emphasis placed by the AER on establishing its own alternative estimate and the lack of reference to Ergon Energy evidence, raises question marks over the correctness of the AER's process.

The AER relied on new techniques that it believes give it better insight into assessing expenditure. This new information led the AER to effectively (and incorrectly) put Ergon Energy's proposal to one side from the outset.

The AER incorrectly assumed that their single point estimate is superior to any other model, and to Ergon Energy's revealed base year. This means the AER put Ergon Energy's proposal aside to focus on an alternative forecast driven by a single point estimate that is highly subjective.

All evidence (primary and secondary) was driven by the single point estimate derived from the economic benchmarking conducted by the AER.

Indeed, the AER was satisfied that material inefficiency exists in Ergon Energy's revealed expenditure on the basis of primary and secondary evidence – all of which was driven by the single point estimate derived from the economic benchmarking it conducted:

"Our benchmarking demonstrates that the service providers' revealed opex is inefficient. Other quantitative techniques as well as qualitative review by Deloitte Access Economics (Deloitte) support the benchmarking findings.⁶"

Therefore in relation to its primary reliance on benchmarking, the AER:

⁵ AEMC final determination Economic Regulation of Network Service Providers, and Price and Revenue Regulation of Gas Services, p112

⁶ Attachment 7 – Operating expenditure | Ergon Energy preliminary determination 2015–20, p7-46

- relied on the economic benchmarking techniques developed by Economic Insights for assessing the relative efficiency of service providers compared to their peers;
- relied on data submitted by all service providers in 2014, based on specific historic information over the period 2006 to 2013;
- relied on four different econometric models prepared by Economic Insights;
- noted each model differs and accounts for key operating environment factors to differing degrees and this means each model arrives at a different outcome; and
- concluded the models are reliable because the efficiency of each of the Queensland service providers' revealed expenditure does not compare favourably with that of many of their peers.

It was only after the benchmarking assessment was complete that the AER used category analysis and conducted a detailed review of significant cost categories. This analysis was only undertaken to check for consistency with the findings of the benchmarking analysis. The AER therefore appears to design their secondary analysis to reconcile with the outcome of their primary analysis.

By way of illustration; in relation to using Partial Performance Indicators (PPI) the AER appropriately states their concerns with misinterpreting PPI analysis:

“PPIs are a simplistic form of benchmarking... when used in isolation their results should be interpreted with caution because they are not as robust as our economic benchmarking techniques that relate inputs to multiple outputs using a cost function.⁷”

“‘Per customer’ PPIs tend to be less favourable towards rural service providers who typically operate more assets per customer... Ergon Energy has a low density network so it will appear to perform worse on PPIs than it does on the economic benchmarking models⁸”

“PPIs do not explicitly account for operating environment differences and examine only one output.⁹”

Despite these statements, because the results of the PPI support the primary analysis, the AER used this secondary analysis as a consideration for supporting the results of its benchmarking outcomes. The Preliminary determination appears to repeat a circular justification of both PPI and economic benchmarking outcomes:

...We have conducted several reasonableness checks of the results including PPIs... Our view remains that PPIs are complementary to economic benchmarking and are an appropriate means crosschecking validity.¹⁰

⁷ ibid p7-48

⁸ Ibid p7-49

⁹ ibid

We consider the PPI results do provide further evidence to support the results of our economic benchmarking techniques¹¹

... our PPI metrics (opex per customer and total user cost per customer) support the economic benchmarking results¹².

...On total customer cost per customer, Energex and Ergon Energy appear to have high costs relative to Powercor. These results are consistent with our economic benchmarking, which does account for factors such as scale and customer density. As a result, these operating environment factors only explain a part of the cost differential between Energex, Ergon Energy and Powercor¹³.

2.2. Deloitte recommendations

The Deloitte review was unduly influenced by the single point estimate. In undertaking the review Deloitte uncritically accepts there is a calculated gap in opex efficiency based on the AER's benchmarking.

The AER asked Deloitte to help explain the "efficiency gap" that the AER had identified in its primary analysis. As such, the relevance of the results of the engagement as secondary evidence is questionable as it was unduly influenced by an underpinning assumption that the MTFP benchmarking undertaken by the AER was correct.

Deloitte's key findings include:

- Ergon Energy's high total labour costs when compared to more efficient peers must be a result of having too many employees rather than a high cost per employee;
- Ergon Energy's EBA prohibits certain activities (such as switching) from being conducted by a single person. In other states these activities can be performed by a single person and this could contribute to the efficiency gap;
- certain EBA provisions, while not necessarily unique to Ergon Energy, limit their ability to quickly adjust their workforces flexibly and utilise them productively and this could impact efficiency;
- overtime expenditure in the base year could contribute to the efficiency gap;
- the failure to market test ICT services provided by SPARQ results in inefficiency in base opex for both Queensland service providers; and
- Ergon Energy could realise efficiencies if it implemented a Local Service Agent (LSA) model.

There is a certain fallacy of deductive logic in the Deloitte report. Deloitte offers a number of possible theories that may explain factors for the efficiency gap without quantification and largely ignores the so-called "technical debate" regarding the validity of the AER's benchmarking approach. Given that

¹⁰ Ibid p95

¹¹ Ibid, p48

¹² Ibid

¹³ Ibid –p136

the analysis started with the assumption of inefficiency on the part of Ergon Energy the resulting report has a number of significant issues, specifically:

- the lack of recognition of alternative analysis,
- the lack of explanation about why common issues do not cause inefficiency in other networks, and
- significant confirmation bias in reports that the AER has relied upon.

As such, while the AER might claim that these reports support the primary analysis, the value of this support is questionable given the starting point.

Given these flaws in Deloitte's overall approach, PWC was engaged to independently review a number of key findings made by Deloitte.

2.3. PWC review of Deloitte report

The outcomes of the PWC reviews undertaken has indicated that the Performance Analysis Report supplied by Deloitte did not provide sufficient evidence to support the positions reached by Deloitte on Ergon Energy's labour efficiencies. PWC also found that the Performance Analysis Report did not adequately take into consideration Ergon Energy's large geographical footprint and differences in environmental conditions that its network operates within (PWC's reports on Labour Expenditure Review, OEF Review and OHS Review are attached to this submission).

We observe the PWC finding in the following context:

- the unreliability associated with the AER's benchmarking approach to provide a single point estimate to derive an opex forecast as evidenced in numerous submissions made by Ergon Energy, its advisers and other NEM DNSPs and their advisers, including the latest Huegin benchmarking report,
- the cost reductions and productivity gains made by Ergon Energy relative to other NEM DNSPs across the 2015-2019 period,
- Deloitte's uncritical, unquestioning and almost circular reliance on the AER's benchmarking approach to infer that there is materially inefficiency inside Ergon Energy as it undertook its bottom up analysis of the company,
- Deloitte's selective use, heavy reliance upon and incorrect assessment and misconstruing of various EEP reports and Board papers that covered regulated, unregulated and retail businesses undertaken by the Ergon Energy Group of Companies that were not themselves used to inform our opex and capex forecasts for 2015-2020,
- the finding by Deloitte, without adequate evidence, that the 2012/13 base year as adjusted was not efficient,
- the additional information supplied by Ergon Energy to the AER during the Q&A process regarding the performance of SPARQ and the ICT costs it passes on to Ergon Energy and in our submissions and Revised Proposal in response to the AER's Preliminary Determination, including a new KPMG Report,

When collectively considering the above context and the PWC findings, it is clear that Deloitte's Performance Analysis Report is unable to be relied upon by the AER to any material degree to inform its assessment of the efficiency of Ergon Energy's opex forecasts or relative efficiency against other NEM DNSPs.

The Performance Analysis Report also contained a statement that approximately \$98Million of EEP Savings were achieved in 2013-14 and not incorporated in the opex base year (at page 28 of the

report). It is not clear what analysis was conducted by Deloitte to support this finding and Ergon Energy consider that Deloitte have misinterpreted the source documents Ergon Energy supplied it.

In particular, Ergon Energy notes that the EEP programme ran across the entire Ergon Energy Group not just its regulated functions, so savings achieved would by necessity be distributed across the whole group (both at a capex and opex level) and not just its regulated opex functions.

Additionally, Ergon Energy is unable to find any evidence in its source documents where it had specifically committed to achieve \$98Million savings in 2013-14 and notes that in 2013-14 it had continued to realise savings of approximately \$40Million-\$50Million from its Wave 1 activities (not a further step down of savings) with further assessment of other opportunities totalling \$48Million across a mix of areas underway but not yet confirmed. It would appear that Deloitte has misinterpreted the source documents supplied by Ergon Energy and notes that at no stage before or since release of its report has Deloitte or the AER sought to clarify or discuss with Ergon Energy its understanding of the EEP materials supplied to it despite Ergon Energy highlighting the dangers in relying on the EEP materials out of its proper context.

3. AER's single point estimate cannot be satisfactorily relied upon

Because the Economic Insights (EI) econometric model used by the AER calculates a gap between the revealed costs in the base year and the benchmark opex level, the AER concludes without consideration of any other matters, that an adjustment is necessary to Ergon Energy's revealed base year opex.

We are confident that a firm that performs below this level is therefore spending in a manner that does not reasonably reflect the opex criteria. An adjustment back to this appropriately conservative point is sufficient to remove material inefficiency.¹⁴

The AER uses its own economic benchmarking analysis, the Economic Insights Cobb Douglas SFA model as the basis for the adjustment to base opex. Specifically the AER:

- applies the efficiency score for the business at the upper third (top 33 per cent) of companies in the benchmark sample (represented by AusNet Services) as the appropriate benchmark comparison point, and
- believes an adjustment of this level incorporates an appropriately wide margin for potential modelling and data errors and other uncertainties.

The AER again relies solely on its own economic benchmarking analysis, the Economic Insights Cobb Douglas SFA model as the basis for an adjustment to opex. The adjustment process involves:

- using the SFA model to estimate average efficiency over the 2006–13 period,

¹⁴ Attachment 7 – Operating expenditure | Ergon Energy preliminary determination 2015–20, p7-26

- adjusting the SFA results to take into account the reduced benchmark comparison point and operating environment factor allowances, and
- 'rolling forward' the average efficient opex in the period 2006-13 to the 2012–13 base year.

The AER received numerous, comprehensive submissions and evidence that questions the outcomes of the AER's approach based on the accuracy and robustness of the model selection, specifications, and inputs. Despite this, the AER holds a clear, unequivocal and in Ergon Energy's opinion – incorrect, view that:

- Economic Insights' benchmarking is robust and reliable;
- the Australian data used is robust because it was gathered, tested and validated by the AER;
- the Australian data is appropriate because the AER consulted with stakeholders for over three years; and
- International data used by Economic Insights (to improve the precision of the models) is also robust in this context because electricity regulators in the respective jurisdictions used the data in recent regulatory decisions.

3.1. Choice of model is highly subjective

We previously noted in a separate submission to the AER that SFA models require vast amounts of data – and where that data is sourced from other jurisdictions, issues of comparability and heterogeneity are introduced. We noted that the AER has relied upon data from Ontario and New Zealand for their SFA model. This not only casts doubt on the veracity of the model, but also restricts the flexibility in variable choice and environmental variable consideration.

Our experts, Huegin Consulting also had concerns with the selection of the Model and model specifications. Huegin noted that the SFA model relied upon by the AER:

- Relies upon international data that cannot be validated and “skews” the model coefficients away from what might be considered appropriate.
- Is subject to bias through unobserved heterogeneity - where important differences that effect costs have not been accounted for.
- Is sensitive to small adjustments in the assumptions - a signal that the results cannot be relied upon.

In responding to the concern, the AER references the following quote from the Tribunal in its preliminary determination.

It is axiomatic that there will be no one correct or best figure derived from a forecast that in terms of cl 6.5.6(c) 'reasonably reflects' the opex criteria – the very nature of forecasting means that there can be no one absolute or perfect figure. Different forecasting methods are more likely than not to produce different results. Simply because there is a range of forecasts and a distributor's

forecast falls within the range does not mean it must be accepted when, as here, the AER has sound reason for rejecting the forecast¹⁵.

Ergon Energy in no way disputes the above quote. Our submission to the AER is that, because there are a range of different forecasts, that are more likely than not to produce different results, the AER must consider these forecasts in its overall assessment.

The pertinent point lies in the last sentence:

Simply because there is a range of forecasts and a distributor's forecast falls within the range does not mean it must be accepted **when, as here, the AER has sound reason for rejecting the forecast (emphasis added)**

In our case the AER is determining the forecast of a DNSP as materially inefficient on the basis that the single point estimate calculated by the regulator is lower than the forecast of the DNSP. On this basis alone, the AER has no sound reason for rejecting the forecast as we outline in this response.

3.1.1. An incorrect assumption of model superiority

The AER's main supporting argument in favour of the econometric model relied upon for the evaluation of efficiency and substitution of the opex base year and forecast, is that Economic Insights' SFA Cobb-Douglas model is superior to any other models presented by service providers and consultants.

"Our view is that Economic Insights' benchmarking is robust and reliable. The model specification and estimation methods are superior to the alternatives proposed by service providers and their consultants" ¹⁶.

It is worth reiterating the observation in the Huegin report that the model selected by the AER is not even the AER's preferred model specification, let alone demonstrably superior to any other option. Rather the model is a compromise forced by the lack of data available in the broader international dataset – which is only required due to the preference to use SFA estimation techniques over other simpler methods that could have been employed using Australian data only.

The decision by the AER to use SFA modelling and introduce international data to facilitate the technique has eliminated the opportunity to test and use a number of alternative specifications – including the AER's preferred specification. There is very little that can be included in the cost function due to the small union of common data across the three jurisdictions. Economic Insights

¹⁵ Attachment 7 – Operating expenditure | Ergon Energy preliminary determination 2015–20, p7-73

¹⁶ Attachment 7 – Operating expenditure | Ergon Energy preliminary determination 2015–20, p7-57

have used what was available, but it would appear that even they would have used a different specification had the data been available for Ontario and New Zealand, as their report states:

The most comprehensive opex cost function model we derived from using the RIN data only involved two outputs (customer numbers and circuit length), three operating environment factors (share of underground, share of single stage transformation and minutes off supply), distribution transformer MVA as the quantity of capital (to allow for opex/capital interaction) and a time trend.¹⁷

We also note the AER's preference and criterion for determining model superiority is driven primarily by the parameter coefficients rather than any logical or practical reason. Whilst this might drive a technically more robust econometric model it does not necessarily facilitate a more valid estimation of Ergon Energy's efficient level of opex.

The analysis in the latest Huegin report supports our concern that the AER have confused Economic Insights' search for refined parameter coefficients with a superior estimate of efficient opex.

3.1.2. Role of Economic Insights

Economic Insights are experts in the field of economic benchmarking and their credentials in providing expert advice on sophisticated, complicated econometric analysis of large amounts of information are highly regarded. However, the outcomes generated are not necessarily correct and the only outcome that should be considered. The credentials of the consultant alone do not enable benchmarking results to be applied in a deterministic manner.

The Economic Insights response to the AER's direction to review the reports of service provider consultants demonstrates this delineation. Economic Insights find that their analysis and models are superior to anything put forward by the consultants to the service providers. However Economic Insights' review largely focuses on the technicalities of the economic techniques, rather than the regulatory decision or the appropriate level of efficient opex for the networks.

3.1.3. Reliance on the EMCa report

Economic Insights also references an engineering view on the relationship between opex and customer density changes at the low densities of Essential Energy and Ergon Energy relative to other rural DNSPs. The report referenced by Economic Insights is the EMCa's "Relationship between Opex and Customer Density for Sparse Rural Networks" report.

The EMCa (2015a) engineering review commissioned by the AER which indicates the relationship between maintenance opex and line length and between non-maintenance opex and customer numbers can be expected to be approximately linear for rural and remote DNSPs. Since the CD

¹⁷ Economic Insights, Response to Consultant Reports on Economic Benchmarking, p23

model implies approximately linear relationships over the variables' relevant ranges, no additional allowance for the characteristics of the remote DNSPs is required.¹⁸

However, Ergon Energy notes that the EMCa report suggests that in EMCa's view, route line length is the appropriate explanatory variable for 60 to 70% of opex costs (maintenance) and customer numbers is the appropriate explanatory variable for the remainder. As noted by Huegin in their report:

The [EMCa report] AER have relied upon to justify the assumption of linearity of costs with density contradicts the SFA CD model that it is intended to support. That is, the AER rely on EMCa's assumption that line length is the predominate driver of cost for rural networks to support the assumption of linearity of costs in the Economic Insights model which assumes customers are the predominate driver of cost.¹⁹

Ergon Energy dispute Economic Insights assertions regarding linear cost increases and point to substantial evidence provided in the Huegin report demonstrating:

Costs increase non-linearly with decreasing population density and that the asset is a much more significant driver of opex change than customers for any network, but rural particularly.²⁰

3.2. Choice of model attributes is highly subjective

The choice of an SFA Cobb-Douglas model and the associated need for international data not only limit the model specification options, but also raises a number of questions regarding the assumptions that must be made in reference to the international data utilised.

3.2.1. Model Form

Economic Insights have rejected other models and techniques on the basis of their preference for SFA despite a lack of empirical evidence that their model provides a more reliable estimate of efficient opex. Ergon Energy believe that even within the very narrow parameters of what Economic Insights consider an appropriate model and technique, and within the limited amount of data available, there exists a number of alternatives that are statistically equal or superior to the EI model.

For example, Huegin present a model specification using the EI technique, but using the square of circuit length, reflecting the stronger relationship of opex to the asset, rather than the customer. Huegin's report notes that if km squared were included as a variable in the SFA model, a statistically superior model that predicts an efficient opex for Ergon Energy in 2013 of \$347 million (\$FY15)

¹⁸ Economic Insights, Response to Consultants' Reports on Economic Benchmarking of Electricity DNSPs, p64

¹⁹ Huegin Review - AER Benchmarking of Ergon Energy Opex, p16

²⁰ Ibid, p16

results; under these conditions Ergon Energy's base year opex would have been accepted as efficient.²¹

Huegin goes on to note:

The AER may also critique the alternative model we present here as biased toward networks with longer line length. However we consider the preferred model of the AER is biased against such networks. Even though our Model 6 is statistically superior to the AER's preferred model, it is no more immune to opinion-based critique than any other. A common criticism of economic modelling is that it often involves appeals to practicality when it suits whilst dismissing it elsewhere.²²

3.2.2. Error Term Distribution

The use of stochastic frontier analysis is predicated on the assumption that inefficiency among the DNSPs used in the sample follows a truncated normal distribution. In order for the results to provide a reliable indication of the different levels of efficiency between DNSPs, this assumption should reflect reality. Economic Insights and the AER have provided no evidence to support the assumption that inefficiency between DNSPs should follow a truncated normal distribution.

In addition, given the failure of the model to explain many of the differences in operating environments between DNSPs it is likely that the error term used to infer inefficiency will be biased against DNSPs that operate in more challenging environments and favour network service providers with favourable conditions.

Whilst the bias of the error term and corresponding overstatement of inefficiency will be present in both the least squares opex cost function and the stochastic frontier cost function, the differences in the "efficient" base year between these methods illustrates the consequences of assuming a truncated normal distribution.

Using the same process of deriving an average efficiency score across the sample period and rolling forward to 2013, the least squares approach suggests an efficient base year opex of \$319 million as opposed to the \$305 million predicted by the stochastic frontier approach. Whilst the AER maintains that the results of these benchmarking models are consistent²³ this disparity in the estimate of an efficient base year is the equivalent of \$73 million over the next regulatory period. Ergon Energy believes that if the AER is going to rely on assumptions regarding any type of inefficiency distribution it should provide evidence that such an assumption is plausible and reasonable.

3.2.3. Confidence Interval

The AER have not appropriately considered their single point estimate result within the applicable confidence intervals. If the AER had given consideration to the confidence intervals associated with Economic Insights modelling they would have found Ergon Energy's forecast opex to be within a reasonable range. As Huegin point out:

²¹ Ibid, p38

²² Ibid

²³ Attachment 7 – Operating Expenditure, Ergon Energy preliminary determination 2015-20

We appreciate that the AER cannot test every model possible within its dataset, however it should at least recognise the significant swing in outcomes when the models are applied as a determinant of efficiency without consideration of confidence intervals or model “blending” to mitigate single estimate bias.²⁴

Even within the narrow range of the three econometric models relied upon by the AER there are significant variances across the confidence bands; these outcomes are detailed below in Section 4.3.

3.2.4. Other Environment Factors

Rather than addressing the lack of explanatory power in its economic benchmarking model, which Ergon Energy and others have identified, the AER sought to smooth over these evident weaknesses by applying a large number of OEF adjustments that have been determined in a relatively ad-hoc manner. The OEFs considered by the AER have grown with each new determination. Huegin also point out:

If all OEFs were considered simultaneously for all businesses, and/or if these were considered more appropriately as data normalisation (i.e. pre-modelling) requirements, then the efficiency scores for all businesses would change - *as would the frontier business*.²⁵

A large amount of the analysis supporting OEF’s is discursive and there is no real quantification underpinning most of the adjustments. The data sources for those adjustments that do involve calculations are extremely limited (sometimes based on data for just one network, but generalised to many with no detailed analysis to support that practice). For the OEF adjustments to truly reflect cost differentials, significantly more analysis and consultation is required between the AER, Economic Insights and the distributors.

The analysis to adequately calculate the difference in cost between two networks for many of the environmental factors listed by the AER would take considerably longer than the short timeframe in which it has been attempted. This is particularly the case for factors not related to some unique cost, such as a levy that does not exist in another business, but for a cost premium in a common activity, such as weather impacts on pole inspection costs.²⁶

²⁴ Huegin Review - AER Benchmarking of Ergon Energy Opex, p36

²⁵ Ibid, p19

²⁶ Ibid, p18

Reports supplied by PWC²⁷ (mentioned earlier) identify various issues with the calculation of a number of OEFs and suggests and number of potential changes to various OEF's. Ergon Energy supports PWC's analysis and requests that the AER consider inclusion of these OEFs at the values recommended by PWC should the AER continue to maintain its decision making approach on benchmarking in the final determination and how it seeks to apply OEFs, along the lines employed in the Preliminary Determination.

3.3. Choice of observation period is highly subjective

In a recent report for Ergon Energy, Synergies noted:

"It is possible that Australian DNSPs with low average efficiency scores from these measures have, in fact, exhibited substantial efficiency gains in later years. If this be so, then reducing 2013 operating costs by an amount equal to the average level of inefficiency over the study period would have the effect of reducing operating costs below the efficient level for that DNSP."²⁸

Ergon Energy has made substantial reductions to opex in the latter part of the current regulatory period and in its forecast opex for the 2015-20 regulatory period; using an average efficiency measured over 2006 to 2013 will overstate possible efficiency gaps as many costs have been reduced by Ergon. The weaknesses of relying on historic data to determine efficient levels of opex have been highlighted by OFGEM. OFGEM use five years historical data and eight years of forecast data. Not only do OFGEM recognise the importance of including the forecast data in the efficiency analysis (which the AER do not do), but they also understand the danger in relying on historical data. OFGEM states:

"The use of 13 years of data is more consistent with our disaggregated benchmarking where we have made extensive use of forecast data. There are a number of areas, notably CAI costs and BSCs, where DNOs are making significant savings in RIIO-ED1. **These savings would not be reflected if we base our analysis only on historical data.**"²⁹ [Emphasis added]

3.3.1. Comparison to an irrelevant frontier

The data sets used by the AER are too aged to be relevant as it includes pre-2009 expenditure that is not reflective of current operating expenditure. This applies to both Ergon Energy and the DNSPs found to be on or close to the frontier. Economic Insights justifies an average of the 8 year historic sample is far less risky than assessing the NSPs proposed forecast:

²⁷ Refer PWC Operating Environment Factors - Supporting analysis for submission to the AER 1 July 2015, PWC Occupational Health and Safety Obligations, July 2015

²⁸ Synergies, Concerns over the AER's use of benchmarking as it might apply in its forthcoming draft decision on Ergon, p34

²⁹ Ofgem, RIIO-ED1: Draft determinations for the slow-track electricity distribution companies Business plan expenditure assessment, p21

“...the purpose of the AER’s economic benchmarking approach is to provide an independent check on the reasonableness of the DNSP’s forecast opex. It does this by forming an alternative forecast of the DNSP’s efficient opex requirements using the base/step/trend approach. Economic benchmarking contributes to the base and trend elements of this alternative forecast. If the DNSP’s opex forecast is markedly higher than the AER’s alternative forecast then the AER has the option of disallowing the DNSP’s forecast and substituting the alternative forecast for it. To rely solely on the ‘forecast provided by the businesses’ would run the risk of the regulator being gamed and consumers paying for inefficiently high levels of expenditure.

Based on the consultants’ reports submitted there is no reason to change from using the rate of change mechanism to roll the DNSP opex adjustments from the average of the 8 year sample forward to 2013. And, as noted in the preceding section, our approach has the advantage of our efficiency estimate not being dependent on any one year and its special circumstances or DNSP gaming in that year while allowing that estimate to then be rolled forward to 2013 using an objective and consistent methodology.”³⁰

There is no substantiation to the claim that out-turn expenditure in 2006 is more relevant to a forecast in 2020 than an actual forecast in 2020. Economic Insights fails to recognise the consequences of relying solely on the single point estimate to set the forecast, in the absence of evidence put forward by the business.

In his report for Grid Australia in 2013, Houston observes the inadequacies of the AER’s emphasis of determining a single point estimate at a point in history, when the AER’s actual task is to determine the reasonableness of a medium term forecast:

A conclusion by the AER that inefficiency exists, even if correct, fundamentally relates to the level of total costs in the base year. It will also be heavily dependent on the TNSP’s capital stock (ie, the RAB for that year), which is in turn dependent on previous decisions made by the TNSP, including those made decades previously.

In contrast, decisions that the AER is required to make as part of its regulatory determination relate to the efficient level of opex and additional capex required by the NSP, looking forward over the next regulatory period. Given these fundamental differences, it is difficult to identify any

³⁰ Economic Insights, Response to Consultant Reports on Economic Benchmarking, p58

insights that the AER's proposed benchmarking analysis of total costs is capable of providing to assist the decisions it is required to make.³¹

The AER states that the use of historical data is valid to avoid fluctuations and the roll forward of efficient opex to 2013 accounts for improvements made over the historic period. However this is still compared to a frontier that uses the average from 2006-2013. With different investment and operating cycles over the time frame and into the future, Ergon Energy believes that the use of an average overestimates the efficiency of DNSPs on the frontier and underestimates the efficiency of Ergon Energy.

In its Preliminary Determination, the AER also acknowledged the danger of placing too much weight on historical information:

...using a network business' past information to set future targets can reduce the incentives of the business to lower costs³².

As we note below, the imperative to exclude this data is even greater for the AER, as no forecast data is used in the models.

3.3.2. Inappropriate influence of pre-2009 costs

In its Preliminary Determination, the AER states:

The AER makes decisions on the basis of the relevant evidence it has before it at the time (emphasis added). In 2010, on the basis of the evidence before us, and also having regard to the circumstances in which we made our decision, we determined what we considered to be an appropriate basis for forecasting total opex for the period 2010–15.

If benchmarking [now] shows a service provider's revealed opex is materially inefficient, it is not possible to set an opex forecast based solely on revealed expenditure that is consistent with the opex criteria. Such an approach would ignore relevant considerations and techniques that we regard as robust and important.³³

By the AER's own acknowledgement, the operating conditions pre-2009 were different. In considering OEF adjustments, the AER considers changes in standards and obligations for:

- Bushfire legislation

³¹ Grid Australia submission on AER draft expenditure forecast assessment Guidelines, NERA holistic benchmarking report, p31

³² AER Preliminary Determination Attachment 7 – Operating expenditure | Ergon Energy preliminary determination 2015–20 p59

³³ Attachment 7 – Operating expenditure | Ergon Energy preliminary determination 2015–20, p7.88

- Occupational Health & Safety
- Security criteria
- Licence conditions

Many of these changes occurred during the period from 2008 to 2009, which also happens to coincide with the period of transition from state based regulation to national regulation under the AER. A simple observation of the opex data pre-2009 shows that it was highly volatile and not reflective of current operating circumstances. Removing the data prior to 2009 would provide a more consistent set of numbers as well as ameliorating to a small extent the undue influence that such dated costs are exerting on the AER's assessment of relative efficiency.

Any influence that recent year-to-year fluctuations in opex have over the model outcomes (the reason that the AER provides for including historical data) is dwarfed by the influence of pre-2009 costs. As Huegin analysis shows the removal of the 2006 to 2008 data from the SFA Cobb-Douglas model results in an efficient opex prediction for Ergon Energy of **\$332 million** (\$FY15), as opposed to the AER assessment of **\$305 million**.

Given DNSP's costs for operations and activities that do not impact output volumes (i.e. legislative and regulatory requirements) have been increasing since 2006, it is not surprising that industry productivity as measured by the AER's model, has been declining over time. These increased activities for no consequential increase in output mean that when averaged over time the frontier DNSPs will have an inflated efficiency score. The easiest way to eradicate the impact of the change in business conditions is to exclude data prior to 2009³⁴.

We note that Ofgem rely upon only three years of historical data to estimate its cost models in its "fast-track" evaluation process: "We have used three years of historical cost data in estimating our fast-track cost models for RIIO-ED1".³⁵ As stated earlier, Ofgem only extend this history to five years when combining with the eight year forecast in its "slow-track" process. Frontier Economics advises in their report:

Ofgem recognised however that benchmarking historic cost to inform future allowances would not be appropriate if the costs included to determine the relative efficiency in the historic period are not likely to be reflective of costs that the DNOs will incur in the future³⁶

The AER should be concerned that other regulators are apprehensive regarding the influence that historical data has on forecasts derived from benchmarking, especially given the AER's models only use historical data.

A recent report supplied by Synergies to Ergon Energy also highlights the potential impacts of investments in capital made at different periods of time on perceived efficiency outcomes and reinforces the importance of considering the level of DNSP allocative efficiency³⁷.

³⁴ We believe 2009 is a good start year as it incorporates increased costs associated with new legislative requirements and also ensures there is a large enough dataset to implement the SFA model used by the AER.

³⁵ Pg27, RIIO-ED1 business plan expenditure assessment – methodology and results, OFGEM

³⁶ Frontier Economics: Taking account of Heterogeneity when benchmarking, p65

³⁷ Synergies "Further Analysis of Ergon's Efficiency", July 2015

3.4. Serious concerns regarding the underlying data have not been addressed

Inherent uncertainty in the base input data, small sample sizes, heterogeneous business conditions and reliance on questionable assumptions for model specifications all lead to a situation where the likely results of benchmarking efforts are subject to errors greater than the differential between a NSPs forecast costs and the substitute based on a benchmark.

It would be imprudent to operate on the assumption that the data collated by the AER is error free and sufficiently comparable to support benchmarking in the deterministic manner applied by the AER, given that the data has only recently been compiled. The data used by the AER has not had sufficient time to be tested to the same degree as it has in other jurisdictions with greater experience in economic benchmarking.

Frontier Economics, when analysing the outcomes of the AER's analysis for NSW, agrees:

We point out, however, that allowing for latent heterogeneity between DNSPs in the AER's benchmarking model does not mitigate the data problems we identified in our report for Networks NSW. As indicated in that report, the AER's models are flawed because they rely on overseas data that are unreliable and should not be pooled with Australian data, and use Australian data that require much further testing and improvement. These data shortcomings apply equally to our modifications of the AER's benchmarking model.³⁸

Given the experience from other jurisdictions (where similar datasets have been improved incrementally over long periods of time), the AER's assertion that the data are reliable based on only a few months of auditing seems ill conceived.

3.4.1. Use of international data

Neither the AER nor stakeholders in Australia have any control over the quality of the data compiled in other jurisdictions. Therefore the AER's assumption that the data from those jurisdictions has been scrutinised sufficiently to be applied reliably to benchmark Australian networks is an article of faith.

Economic Insights claim that both the overseas datasets have been used recently in benchmarking exercises similar to the AER's is not accurate. In New Zealand the Commerce Commission is prohibited by law from undertaking comparative efficiency analysis of distribution business (under the default price-quality path regime). So econometric benchmarking analysis of the kind undertaken by EI, and relied on by the AER to make reductions to base year opex, has not been conducted in New Zealand using the dataset that EI has made use of.

Rather than disputing or resolving the anomalies in the international data that have been identified, the AER has brushed these aside as unimportant and inconsequential (e.g. by arguing that large movements in data appear to be for small networks, or that some of the variables for which anomalies were identified were not used by EI in its modelling).

³⁸ *ibid*, p43

These explanations are unconvincing. Since all the variables specified in EI's SFA model are expressed in log terms, changes in those variables over time may be interpreted as percentage changes. This means that small networks and large networks receive the same weight in the analysis, so that errors related to data on small networks can be as influential in the analysis as errors related to large networks. This would counter EI's suggestion that possible errors in the Ontarian dataset are somehow less problematic because they seem to occur for small NSPs.

Furthermore it is irrelevant that the anomalies identified relate to variables that EI did not use. Ergon Energy is concerned that anomalies such as these may be indicative of the general unreliability of the overseas data, and should have made both the AER and Economic Insights more cautious about the possibility of less obvious (but nonetheless influential) errors in the data.

At the very least, the presence of such anomalies should have alerted the AER and its advisor to undertake a more detailed investigation of the accuracy of the data on the variables that were used in the analysis to rule out the possibility of errors. Instead, the AER has simply assumed that the data is robust because the regulators in those jurisdictions have supposedly undertaken some checking.

3.5. Resultant effect leads to results that are not credible

There is a strong field of literature and commentary that highlights obvious shortcomings when benchmarking is applied carelessly. The Productivity Commission warned of such dangerous outcomes in its report in 2013:

“... the misuse of good technical analysis can result in adverse outcomes for consumers and businesses. In particular, comparing the costs between businesses in different jurisdictions without accounting for factors outside the control of the business could provide misleading indicators of managerial efficiency. If used in incentive regulation, this could lead to underinvestment or unwarranted transfers from consumers to the businesses.”³⁹

We remain convinced that the errors in both the data and economic benchmarking models through heterogeneous conditions far outweigh the granularity of the adjustments made in the name of efficiency improvement. This results in poor outcomes, with the biggest losers those who hold the greatest heterogeneity to the sample in the model criteria chosen.

3.5.1. Single point estimate has now varied considerably between models and adjustments

We note that the estimates of efficient opex for Ergon Energy since the introduction of the current SFA Cobb-Douglas model approach have varied significantly, despite the AER's unwavering confidence in the SFA model and approach. Across decision points, the AER view of Ergon Energy's efficient base year opex has moved from:

- 42% from the frontier in the initial benchmarking results.
- 36% from the frontier when a weighted average of the top five businesses was used as the frontier in the NSW and ACT draft decision.

³⁹ Productivity Commission, *Electricity Network Regulatory Frameworks*, 26 June 2013, p163.

- 20.4% from the frontier with the introduction of Operating Environment Factor (OEF) adjustments.
- 10.7% from the frontier with the recasting of the frontier to the efficiency score of the fifth ranked business (AusNet Services).

Whilst the changes could be construed as an increasingly conservative approach by the AER in some sort of acknowledgement that the model results should be applied cautiously, Ergon Energy is concerned that:

- the approach is still evolving as is the AER's grasp of its execution, and will continue to do so, presenting high levels of regulatory uncertainty; and
- the iterative concessions made by the AER avoid the more fundamental concern that the origin of the analysis is incorrect or inadequate for the intended purpose of determining an alternative forecast.

The Productivity Commission expressed caution when fluctuations with small changes in variables and inputs lead to large differences in rankings:

If the results of a model are sensitive to small perturbations in the underlying data, the addition of control variables with little expected impact, the removal or addition of a single network business, or to modest changes in assumptions and estimation techniques, then benchmarking results are at best indicative, and at worst, useless⁴⁰

Furthermore, given that the AER continues to introduce more information (for example, the OEFs considered), questions remain as to whether the frontier benchmark would even be the frontier if all these factors were taken into account simultaneously.

3.5.2. Approach moves away from incentive based regulation

The challenge with the approach taken by the AER is that it moves NSPs away from incentive frameworks that have been the pillar of regulatory design in Australia. In a separate report for Networks NSW, Houston notes the concept of efficiency should be on a forward looking basis:

The NEL requires the service provider to be provided with the opportunity to earn 'more than' its efficient costs (Section 7A(2)). This implies that efficient costs are not to be interpreted as 'perfectly efficient' costs which, by definition, cannot be bettered (this is discussed further in section 4.4). The NEL also requires the service provider to be given effective incentives, which forms the basis for the efficiency benefit sharing scheme set out in the NER. If every firm could attain 'perfect' efficiency on an ongoing basis, then there would be no need for either of these provisions, which have the primary purpose of incentivising improved efficiency performance...

⁴⁰ Productivity Commission, Electricity Network Regulatory Framework, Final Report – Volume 1, 9 April 2013, p. 179.

In summary, in practical terms it is difficult to assess a firm's efficiency at a given point in time. This is because the absolute efficiency frontier is not directly observable and comparisons with other firms may have limited relevance. Even if the efficiency frontier was directly observable, it is constantly shifting and therefore constitutes a moving target. Given these considerations, the focus of regulation is typically on providing incentives for efficiency that encourage firms to 'head in the right direction'.⁴¹

The zero base approach leads to an outcome that diverts from the very principles of incentive regulation that the AEMC and AER are quick to advocate. Synergies put it this way:

The basic model that the AER has adopted remains closer in kind to cost-based regulation for firms at or near the frontier due to the lack of higher remuneration for superior performance. For those firms distant from the frontier, it is far from clear that the 'conservative' adjustments are adequate, so it remains likely that the final estimates of controllable efficiency are excessive.⁴²

The regulatory framework for the National Electricity Market (NEM) is designed to operate as an incentive based regulatory regime. Significant consultation across the sector has moved the framework forward to ensure network service operators are incentivised to continually strive for improved efficiencies that are sustainable and in the long-term benefits of consumers.

The AER's significant and abrupt change in approach to determining opex allowances jeopardises the long-term interests of consumers in favour of short-term populist determinations.

The approach to base forecasts on benchmarking outcomes moves away from incentive based regulation that utilises the continually revealed costs of each distributor. Incentive based regulation is preferable because it furthers efficiency improvements that are sustainable and considers an appropriate balance between cost, safety and reliability of service for the distributor in question.

We note the AER has decided not to apply an EBSS scheme as a result of the deterministic approach to the opex forecast.

3.5.3. 65 Adjustment Factors

Because Economic Insights' models fail to account for key differences between service providers, the AER conducted a detailed examination of operating environment factors (OEFs) that the AER feel may not be reflected in the SFA model.

In the NSW & ACT Draft Determinations the AER estimated and adjusted the SFA modeling results for the impact of operating environment factors they deemed significant. The AER also stated they had made provisions for 'other' factors they considered would be immaterial individually but collectively could have a material impact. Submissions on the draft decisions concerned the apparent

⁴¹ NERA Economic Consulting Economic Interpretation of clauses 6.5.6 and 6.5.7 of the NER.p 8.

⁴² Synergies, Comments on the use of benchmarking in economic regulation, February 2015, p14

arbitrary approach of the adjustments and the lack of supporting cost analysis regarding the assigned percentage adjustments for the OEFs.

The AER has since undertaken further consultation with some of the effected businesses. In doing so the AER have reviewed in excess of 60 operating factors. Ergon Energy acknowledges the AER's efforts to address the lack of basis of the initial OEF adjustments, however of greater concern is that the AER's base model requires adjustment for so many unconsidered factors.

"We have provided an input margin of 17.1 and 24.4 per cent to Energex and Ergon Energy to account for differences in operating environment factors (OEFs), not accounted for in Economic Insights' SFA model.

We have come to this conclusion after assessing over 60 different OEFs that we, service providers, and other stakeholders identified in the process of this review and in response to our draft benchmarking report."⁴³

The necessity to review over 60 OEF's is akin to a line-by-line, bottom up review of costs. Ergon Energy notes that the issue of reviewing costs on a line-by-line basis was raised by the AER as part of the 2012 rule change process and as part of the AER's push to utilise benchmarking and other top down assessments. It would seem that if the review of over 60 OEFs is required to make the 'model' produce a more reasonable outcome, this appears contrary to one of the reasons why the AER sought changes to the NER to amend the framework in the first place. In its directions paper regarding the economic regulation of Network Service Providers the AEMC noted:

Since most NSP regulatory proposals use engineering detail to determine a "bottom up" calculation, this means that the AER must conduct a line-by-line analysis to reduce the forecast back to a reasonable range.⁴⁴

In June 2015, in response to an information request by Ergon Energy, the AER advised Ergon of "*two clerical errors that have led to some small miscalculations in the OEF spreadsheet*". Ergon Energy requested its consultant Huegin to calculate the likely impact of these errors on the opex allowance. The impact of these two single clerical errors is \$4 million, highlighting the sensitivity of the AER's model to errors, clerical or otherwise.

As mentioned earlier, PWC has also identified various difficulties in the calculation and approach adopted by the AER in respect of several OEFs, all of which would increase the level of opex forecast for Ergon Energy using the AER's current approach. In summary, PWC consider that no

⁴³ Attachment 7 – Operating expenditure | Ergon Energy preliminary determination 2015–20, p7-165

⁴⁴ AEMC 2012, Economic Regulation of Network Service Providers, and Price and Revenue Regulation of Gas Services, Directions Paper, AEMC, 2 March 2012, Sydney, p17

OEF negative adjustment of 2.6% for bushfire management should be made, and that further positive OEF's totaling 18.9% on top of the existing OEFs should be made across four OEFs.

3.5.4. Ergon Energy Penalised for reducing its costs at end of period

As previously noted determining the frontier by the average of 2006-13 data results in a proposed frontier that penalises distributors who have reduced costs at the end of the observation period.

Ergon Energy has embarked on a substantial cost reduction program aimed at capturing efficiency and productivity improvements. As such costs have decreased at the latter end of the regulatory period, however this is not adjusted for in the 'efficiency gap' determined by the AER.

The data period chosen by the AER and the method of rolling forward the 'frontier' produces a biased outcome for Ergon Energy. The resulting 'efficiency gap' is overstated by reductions and efficiencies already achieved by Ergon Energy.

3.5.5. Indications of a rushed process, with poor quality outcomes

Many of the errors involved are an inevitable outcome based on the short timeframes established by the AER for its process. Ergon Energy raised these concerns regarding the process with the AER when it was developing its Guidelines:

Based on attendance at forums and discussion with AER staff, it appears that the AER:

- has already made a conclusion that some businesses in NSW and QLD are inefficient;
- are looking to use benchmarking to confirm this conclusion;
- will seek to use this benchmarking, not only to inform the forecast of expenditure, but to also determine:
 - o that the current expenditure levels are inefficient; and
 - o that the DNSP has not responded to the incentive framework.
- Will use this benchmark to adjust down current expenditure incurred by the business; and
- Expect that DNSPs should be able to reduce expenditure to the benchmark, even though for Ergon Energy, we will not know what this reduced benchmark is until after we have started incurring the expenditure⁴⁵.

⁴⁵ Ergon Energy: Response to AER draft Expenditure Forecast Assessment Guideline, September 2013

The out-turn results appear to be consistent with the concerns Ergon Energy raised more than two years ago. More robust, measured frameworks take time and iteration. Frontier states⁴⁶:

The process of identifying, understanding and quantifying special factors is an iterative one that requires time for proper engagement between the regulator and the networks. Furthermore, it is very likely that data and other information needed to assess and quantify the factors fully does not exist readily, and so will need to be compiled. This will require time.

This means that the quantification of the impact of special factors is a task for the medium-term. AER should develop a process to ensure the necessary engagement with the DNSPs in time for the next review.

4. AER should have considered other evidence but didn't

The regulatory regime embraces an approach which encourages consideration of a broad range of evidence, with a particular focus on the evidence put forward in the Regulatory Proposal. The Australian Competition Tribunal puts it this way:

...it is not the AER's role to simply make a decision it considers best. It is also correct for it to say that the AER should be very slow to reject a DNSP's proposal backed by detailed, relevant independent expert advice because the AER, on an uninformed basis, takes a different view⁴⁷.

Instead of applying itself to consider a broad range of different evidence, the AER relies on the single point estimate, deferring to the ideal that it would have arrived at the same place in any case:

We acknowledge that many aspects of our decision making relate to forward looking, technical and difficult matters, on which reasonable minds can differ. However, it is important to distinguish different decisions that we potentially could have made in exercising our discretion from a substantive reason why our decision is or would be unreasonable or incorrect⁴⁸

However, as we outline in the following sections, had the AER appropriately carried out its duties it would have found in favour of Ergon Energy's proposed forecast expenditure for the 2015-20 regulatory period.

⁴⁶ Frontier Economics: Taking account of heterogeneity when benchmarking p83

⁴⁷ Australian Competition Tribunal, Application by EnergyAustralia and Others 2009 (ACompT8), 12 November 2009, paragraph 14.

⁴⁸ Attachment 7 – Operating expenditure | Ergon Energy preliminary determination 2015–20, p7-73

4.1. Inclusion of recent and forecast information

A greater reliance on more recent data would accord more closely with the AER's own claims that the most recent data available should be used.

We have indicated in previous decisions and in defending those decisions our preference to use up to date information where possible. The Tribunal has endorsed this approach and indicated a similar preference: see for example *Application by Ergon Energy Corporation Limited (Labour Cost Escalators) (No 3) [2010] ACompT 11* at [61] to [62]⁴⁹.

Ergon Energy engaged Huegin to undertake further benchmarking analysis and determined:

- The use of 2009 to 2013 data would determine efficient opex for Ergon Energy in 2013 of **\$331.7 million** (\$2014-15) instead of the **\$304.6 million** (\$2014-15) benchmarked.
- Benchmarking from 2006-2019⁵⁰ would place Ergon Energy 8% from the frontier (using the same OEFs) as opposed to the distance of 22% from the midpoint of the 2006-13 period.
- Using data from 2009-2019 and applying the OEFs identified by the AER, would result in Ergon's opex over the regulatory period 2015-20 being deemed efficient.

The staggered regulatory cycle has also limited the inclusion of forecast data, penalising distributors who are at the beginning of the cycle and favouring those at the end who benefit from a more complete data set.

The AER must acknowledge these issues with the data set and at the very least give due consideration to inclusion of more recent data. Ergon Energy suggests:

- 2014 data should be added (where actuals are not available the most up to date forecast should be sought); and
- 2006-09 data should be excluded.

4.2. Alternatives to deterministic application

Frontier Economics, in a report for Ergon Energy, notes the risk of benchmarking, when it is not used correctly:

Benchmarking can play an important role in regulatory reviews, allowing the regulator to protect customers from inefficient costs and to buttress other incentives for cost efficiency. However, as discussed above, benchmarking can only play this role effectively if it is well designed and used with care. Poorly designed benchmarking used recklessly can result in arbitrary disallowances

⁴⁹ Attachment 7 – Operating expenditure | Ergon Energy preliminary determination 2015–20, p7-85, Footnote 199

⁵⁰ Data has been collected using the Reset RIN's from each of the DNSPs in the NEM. As TasNetworks has not yet published a Reset RIN their data is included to 2014 and they are not included within the frontier DNSPs.

reasonable costs, hampering the planning and delivery of network services, increasing risk for investors, and damaging the interests of customers⁵¹.

Feedback from many stakeholders included observations of other jurisdictions where:

- Multiple models are combined to avoid undue bias inherent in a single model.
- The results are used to arrange networks in ranks or cohorts, but not to provide a substitute forecast based on the efficiency score.

The AER makes the following statement in its Preliminary Determination:

“The Productivity Commission found utility regulators around the world use static (and dynamic) benchmarking to encourage regulated businesses to achieve the long-run efficiency outcomes of decentralised, workably competitive, markets. Benchmarking has been used by:

- Australian regulators, including state based electricity regulators and the AER
 - international regulators such as OFGEM (United Kingdom), CER (Ireland), NZCC (New Zealand), and OEB (Ontario Canada)
 - various academics in the Australian, European, American and other contexts.”⁵²
-

Whilst the AER references the fact that other regulators and jurisdictions have utilised benchmarking, the AER have not referenced how these regulators apply the outcomes of the models. The AER does not appear to consider that a) benchmarking issues have been of such a concern they have given rise to other regulators applying a more cautious approach to applying benchmarking, or b) how the overseas outcomes apply in the Australian context. Both the regulator for Great Britain (Ofgem) and Norway (NVE) moderate their benchmarking outcomes with the distributors own forecasts, recognising the inherent limitations in benchmarking and information asymmetries. It is not clear why the AER does not follow suit when there is such strong evidence that dictates it should.

During consultation on the AER’s expenditure assessment guidelines many stakeholders raised the consideration of other information and data as an issue. Ergon Energy’s response to the draft expenditure assessment guidelines noted our concerns with the AER’s proposed approach:

There appears to be no clear consideration of how the AER intends to carefully weigh all factors in satisfying itself that it should reject a forecast on the basis that it doesn’t reasonably reflect the criteria; There appears to be no consideration of the weight that should be given to the factors

⁵¹ Frontier Economics: Taking into Account Heterogeneity when Benchmarking, p57

⁵² Attachment 7 – Operating expenditure | Ergon Energy preliminary determination 2015–20, p7-66

contained in clauses 6.5.6 (e)(4), (5), (5A) and (8)14 of the Rules against the reliability or otherwise of the benchmarking approaches, or how the AER proposes to take each of these factors into account.⁵³

The preliminary determination does not appear to have considered any information other than the single point estimate derived from the AER's SFA modelling, and analysis from consultants to support this single view. Ergon Energy would argue that given the infancy of benchmarking for Australian DNSPs the AER should have considered other information and analysis in tandem with the SFA modelling outcomes and perhaps considered the approaches of more experienced regulators in the use of benchmarking.

4.3. Confidence interval

The AER notes that it only departs from revealed costs when it considers base opex is materially inefficient. The concept of material efficiency recognises that efficiency is a relative term, and one that does not adjust a service provider's revealed costs for immaterial inefficiency.

This means that we will not adjust the base year opex of a service provider unless its efficiency score (taking into account operating environment factors) is below the service provider with the lowest of the efficiency scores in the top quartile of possible scores⁵⁴.

If the AER had examined our revealed costs in the context of error bands around their alternative estimate they would have determined Ergon Energy was in a reasonable range.

The AER have also misrepresented the alignment of their three econometric models by claiming that they provide a similar result. However, when converted to 95% confidence intervals of the efficient base year opex of Ergon Energy, the reality is starkly different. The ranges of outcomes (in \$FY14) for efficient base year opex using the three econometric models are:

- The SFA Cobb-Douglas model: **\$305 million**.
- The LSE Translog model: **\$315 million**.
- The LSE Cobb-Douglas model: **\$319 million**.

When 95% confidence bands are fitted around these three models the range of outcomes for the Ergon Energy base year opex increases to:

- **\$248.8 million** at the lower end; and
- **\$387.7 million** at the upper end.

⁵³ Submission on the Better Regulation: Draft Expenditure Forecast Assessment Guideline for Electricity Distribution and Transmission Australian Energy Regulator 20 September 2013, Ergon Energy, p7

⁵⁴ Attachment 7 – Operating expenditure | Ergon Energy preliminary determination 2015–20, p7-70

Whilst the fact that Ergon Energy's base year opex falls within the confidence band around the narrow selection of models does not by itself demonstrate that our base year opex is efficient, there is also no evidence that a single point within that range is the more appropriate level of efficient opex. Similarly, when examining our revised Proposal forecasts for opex, Huegin have identified that our revised opex forecasts remain appropriate⁵⁵

5. Realistic application of the circumstances were ignored

We note the AEMC's views on this in their final determination:

The Commission is of the view that the removal of the "individual circumstances" clause [paragraph 6.12.3(f)] does not enable the AER to disregard the circumstances of a NSP in making a decision on capex and opex allowances. Benchmarking is but one tool the AER can utilise to assess NSPs' proposals. It is not a substitute for the role of the NSP's proposal.⁵⁶

In the Preliminary Decision the AER dismissed Ergon Energy's previous submissions concerning the AER's failure to consider the circumstances of the NSP under review. The AER has incorrectly summarised Ergon Energy's concerns as requiring the AER to 'consider its specific cost inputs'⁵⁷. The issues raised by Ergon were much broader and fundamental.

Ergon Energy is specifically concerned that the model specification utilised by the AER to determine an efficient level of base opex fails to consider operating environmental differences appropriately; namely extreme weather, network scale and jurisdiction specific requirements.

Ergon Energy acknowledges the AER's attempt to moderate this deficiency in the Preliminary Determination by applying an adjustment for OEFs. However the starting point from which Ergon Energy is being assessed Ergon Energy's operating environment or exogenous issues that impact both its operations and cost structures.

The AER appears to have taken advantage of the removal of the term "individual circumstances" and utilised it as justification to dismiss Ergon Energy's proposal as the starting point for this determination.

5.1. Significant differences in service area

The Ergon Energy network covers 97% of the area of Queensland. Our focus is on customers who live in rural and regional Queensland. With such a large network area it is inevitable that we experience varying levels of customer density and must distribute electricity across large distances.

As a consequence of our rural and regional focus we have a generally low overall customer density, and some areas with a very low customer density. It is servicing these areas that provides significant challenges and can attract a cost premium. As will be explained in the next section, the limitations of

⁵⁵ See Huegin Addendum 1 to Huegin review: AER Benchmarking of Ergon Energy 2015

⁵⁶ AEMC final determination, p107

⁵⁷ Attachment 7 – Operating expenditure | Ergon Energy preliminary determination 2015–20, p7-57

the Powerlink transmission network also provide challenges in providing bulk supply to more isolated network areas.

Even if OEFs are accounted for there is no reason to expect that Ergon Energy can provide network services to its population at the same cost as Powercor and SA Power. There are fundamental differences between these networks that mean it is more costly to run Ergon's network. Frontier Economics notes:

...clear recognition of the circumstances Ergon faces when serving customers, and how these differ from those faced by other DNSPs, must form an integral part of the benchmarking analysis the AER undertakes when setting cost allowances for Ergon.⁵⁸

Frontier goes on to demonstrate how these differences have not been properly reflected in the AER's approach:

In our view, this is strongly suggestive that EI/AER have failed to account for some important network characteristics, which relate to having to serve relatively sparse and remote regions of Australia. This, in turn, appears to have distorted the AER's benchmarking analysis, and has led the AER to conclude mistakenly that some networks are significantly less efficient than they actually are.⁵⁹

Ergon Energy engaged Huegin to review the impact of service area on costs and benchmarking outcomes. Huegin's analysis, detailed in the attached benchmarking report, clearly demonstrates that customer dispersion has a significant impact on costs. Servicing low density areas incurs a higher cost premium as the network service provider will either incur sub-optimised costs, associated with providing a local presence, or incur greater costs associated with moving labour to service the area when required. Huegin notes:

Ergon's network, as a result of the requirement that it deliver electricity over a space that is significantly larger than that of SA Power Networks and Powercor is likely to face diseconomies of scale that will be construed as inefficiency if not taken into consideration, either through the inclusion in the AER's SFA model of a proxy for service area or an OEF adjustment to the comparison point used by the AER.⁶⁰

⁵⁸ Frontier Economics, Taking account of heterogeneity between networks when conducting economic benchmarking analysis, A report prepared for Ergon Energy, February 2015, p19

⁵⁹ Ibid, p19

⁶⁰ Huegin Review - AER Benchmarking of Ergon Energy Opex, p45

5.2. Different servicing models

As noted by Huegin:

Networks covering larger areas need to travel greater distances to maintain and inspect their network. In addition, the vast distances between network assets mean that capital and labour is to a certain extent stranded at different parts of the network.⁶¹

Ergon Energy notes that in the AER's preliminary determination the AER referenced the IRP recommendation to implement LSA's as a source of reducing inefficiency. Ergon Energy contend there is no evidence to support the view that implementation of LSA's to service highly remote areas of Queensland would provide a more efficient method of service or even that LSAs could be commercially viable in such locations. In addition, there is no consideration by the AER that the LSA model adopted in Victoria may appear cheaper as a consequence of the differences in the network design between Ergon and these comparison networks. As pointed out by Huegin, meshed networks result in shorter travel times and greater access to assets relative to radial networks, which ultimately means the costs of maintaining and inspecting meshed assets are inherently cheaper.

The fact remains that servicing any highly dispersed, low density remote areas will incur a substantial cost premium, a fact the AER seems to have dismissed.

Huegin Analysis⁶² also notes that data on the government's Sentinel Bushfire Notification site indicates the further risks posed in managing bushfire risk on its network. Over a specific time period 458,898 hot spots were identified in Queensland (0.25 per square km of land) compared with 18,015 hot spots in Victoria (0.08 per square km land⁶³).

6. Proper weight and application of NER requirements

Synergies make the following point in its report on the AER's use of benchmarking:

The AER appears to have placed a very heavy reliance on the economic benchmarking limb of the specified factors for its opex forecast assessments set out in Paragraph 6.5.6(e). By implication, the other factors have received much less weight. Given the apparent shortcomings of the benchmarking that the AER has relied upon and the likelihood that it over-estimates controllable operating cost inefficiency, the heavy weight does not appear to be reasonable from the

⁶¹ Ibid, p43

⁶² Refer attachment: Huegin analysis – Incidence of fires in Queensland and Victoria

⁶³ <https://data.gov.au/dataset/sentinel-hotspots>

perspective of meeting the long term interest of customers (as required under the National Electricity Objective).⁶⁴

The regulatory framework incorporates amongst other things the National Electricity Law (NEL) and the National Electricity Rules (NER). Clause 6.5.6(e) of the NER outlines a number of factors in addition to benchmarking that the regulator must have regard to when approving the forecast opex allowances such as:

- Actual and expected operating expenditure of the DNSP during any preceding regulatory control periods.
- The extent to which the opex forecast includes expenditure to address the concerns of electricity consumers as identified by the DNSP in the course of its engagement with electricity consumers.
- Relative prices of operating and capital inputs.
- Substitution possibilities between operating and capital expenditure.
- Whether the opex forecast is consistent with any incentive scheme or schemes that apply to the DNSP under certain NER clauses.

The AER's preliminary determination discusses benchmarking at length but gives little attention to the other factors within NER 6.5.6(e) without providing any substantial justification or reasoning for this. As previously stated by Ergon Energy, the AER's preoccupation with applying the benchmarking results without due consideration of the other NER factors is of grave concern given the infancy of benchmarking for Australian DNSPs.

In undertaking regulatory determinations the AER must also have regard to the National Electricity Objectives:

"To promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:

(a) price, quality, safety, reliability and security of supply of electricity; and

(b) the reliability, safety and security of the national electricity system."

In the AER's expenditure assessment guidelines the AER references that it must take the revenue and pricing principles into account when exercising discretion in making a regulatory determination.⁶⁵ However, as this analysis has demonstrated the AER's preliminary determination for Ergon Energy appears in breach of the pricing principles, as:

⁶⁴ Synergies, Comments on the use of benchmarking in economic regulation, February 2015 p17

⁶⁵ Better Regulation | Expenditure Forecast Assessment Guideline for Electricity Distribution, p6

“A regulated network service provider should be provided with a reasonable opportunity to recover at least the efficient costs the operator incurs in:

- (a) providing direct control network services; and
 - (b) complying with a regulatory obligation or requirement or making a regulatory payment. “
-

Ergon Energy believes the AER’s use of its economic benchmarking outcomes to the exclusion of other assessment techniques or relevant and pertinent information in determining an efficient base year for Ergon Energy, has not resulted in a forecast of opex that gives due consideration to the NER. Further to this, Ergon Energy does not believe the AER’s preliminary decision is compliant with either the NEO or the NEL Revenue and Pricing principles. This issue was also previously raised by Frontier economics:

The AER cannot be satisfied that a substituted expenditure forecast informed by its benchmarking analysis reasonably reflects the criteria in the National Electricity Rules.⁶⁶

Ergon Energy believes the AER has erred in its preliminary determination that Ergon Energy’s base opex is materially inefficient and recommends our revised proposal is accepted.

In its Preliminary Determination, the AER notified Ergon Energy of two additional factors which they consider relevant for the purposes of making their decision on opex. These are

The AER’s own benchmarking data sets including, but not necessarily limited to:

- (a) data contained in any economic benchmarking RIN, category analysis RIN, reset RIN or annual reporting RIN
- (b) any relevant data from international sources
- (c) data sets that support econometric modelling and other assessment techniques consistent with the approach set out in the Guideline

as updated from time to time.

Economic benchmarking techniques for assessing benchmark efficient expenditure including stochastic frontier analysis and regressions utilising functional forms such as Cobb Douglas and Translog.

The NER were specifically amended to allow us to take account of additional factors....

⁶⁶ Taking account of heterogeneity between networks when conducting economic benchmarking analysis A REPORT PREPARED FOR ERGON ENERGY, Frontier Economics, February 2015, p xi

We have used our discretion to give weight to the opex factors which we consider are most relevant to our approach. The AEMC has recognised our discretion in this regard⁶⁷.

We note that while amendments to the NER were made to allow for the AER to take into account additional factors, the AEMC was more circumspect in how often it would apply:

The AER submitted that it should be able to raise any other factor prior to the submission of a revised regulatory proposal... The Commission sees the potential for relevant factors to arise following the submission of the proposal. However, it does not see that the AER should be able to raise a new factor up to the cross submissions stage. This stage is discretionary and designed to address matters raised in submissions. Accordingly, the clause will be amended to reflect that the AER can raise a new factor up to the submission of a revised regulatory proposal. The Commission considers that the existing capex and opex factors are sufficiently broad that it should be rare that the AER would need to consider additional factors.⁶⁸

In providing cross-submissions on the NSW and ACT determinations, Ergon Energy gave consideration to those factors at that time and submits that this same material applies *mutatis mutandis*, to its response and the Revised Proposal to the AER's Preliminary Determination. In addition, the material contained in this supporting attachment, together with the latest PWC and Huegin report expands upon our analysis and consideration of these additional opex and capex factors for the purposes of this response and the Revised Proposal.

⁶⁷ AER: Ergon Energy preliminary determination 2015–20: Attachment 7 p81

⁶⁸ AEMC, Final Rule Determination: National Electricity Amendment (Economic Regulation of Network Service Providers) November 2012, pp. 111.