

Attachment 1: Response to Guidance Note

Impact of capitalisation differences on benchmarking

Preference for Option 2: Econometric Model

Energy Queensland recommends that the AER fully explores the viability of the econometric option (Option 2). A key advantage of the econometric option is to directly incorporate differences in capitalisation policies into the benchmarking models, rather than accounting for differences as OEF adjustments. This means that the results of the econometric models will produce a more accurate reflection of the true efficiency of the DNSP, before applying further OEF adjustments.

The Draft Guidance Note identifies three concerns with Option 2:

1. The AER does not consider that the inclusion of opex/total cost and opex/totex ratios (i.e., 'opex/capital ratios') in the econometric benchmarking models are the best way of accounting for the trade-off between opex and capital inputs.
2. The inclusion of opex/capital ratios as explanatory variables within the econometric benchmarking models would create an endogeneity problem.
3. There is insufficient consistency in cross-jurisdictional data to apply Option 2 reliably.

For the reasons explained below, Energy Queensland does not consider that these concerns are so severe that the AER should dismiss the use of Option 2.

Concern 1: Inclusion of opex/capital ratios are not the best way to account for opex-capital trade-offs

The AER explains in the Draft Guidance Note that it does not consider that the inclusion of opex ratios within the econometric benchmarking models are the best way of representing the trade-off between opex and capital inputs, and that this trade-off could be modelled more directly by including a capital quantity input measure as an explanatory variable (rather than any of the opex/capital ratios proposed by the AER in the November 2021 Consultation Paper).¹

In response to these points, Energy Queensland notes the following:

- The purpose of the present review is to identify a methodology to account for differences in capitalisation *practices* between DNSPs when undertaking benchmarking analysis. As the AER explained in the November 2021 Consultation Paper, capitalisation practices is a broad term that encompasses:

¹ Draft Guidance Note, p. 52.

- Capitalisation policies (i.e., the reporting or classification of expenditure as opex or capex); and
- Opex/capital trade-offs.

The AER explained in the Consultation Paper that a strength of the opex/capital ratios that it had identified is that they capture both capitalisation policies and opex/capital trade-offs:

“Our current thinking is that the value of opex/capital ratios lies in their being able to capture net capitalisation practices, irrespective of specific sources; e.g. capitalisation/expensing of overheads, opex/capital trade-offs. All else equal, a higher (lower) opex/capital ratio indicates a relatively greater (lesser) use of opex relative to capital inputs.”²

It is unclear why the AER now considers that opex/capital ratios are an unsuitable way of reflecting the opex/capital trade-offs (and capitalisation policies) that DNSPs might adopt. The rationale for including opex/capital ratios within the econometric benchmarking models would be to control for differences in capitalisation practices between DNSPs when estimating average opex efficiency over the historical benchmarking period. If the opex/capital ratios are a reasonable way of measuring the capitalisation practices of DNSPs (as the AER has suggested in the Consultation Paper), then the inclusion of opex/capital ratios as explanatory variables in the econometric benchmarking models would (in principle) be an appropriate way to account for differences in capitalisation practices between DNSPs.

- The measures of capital inputs that the AER might consider, are likely to be highly related to the scale of the DNSP. That is, large DNSPs are likely to employ a large quantity of capital inputs (and vice versa). Many of the other output variable considered by the AER (eg customer numbers, circuit length, ratcheted maximum demand) are also related to scale.³ This means that inclusion of a measure of capital as an explanatory variable in the econometric benchmarking models would ‘soak up’ some of the scale effects that are currently captured by the output variables. To demonstrate this, Energy Queensland engaged Frontier Economics to undertake a modelling exercise. For instance, the sum of the estimated coefficients of the three output variables in the LSE Cobb-Douglas model estimated using data over the period 2006-21 is 0.98. This would drop to 0.95 if capital inputs were included as an explanatory variable in the model. There would be a number of associated problems:
 - Owing to the high degree of correlation between the explanatory variables in the models (due to common scale effects), the resulting estimates of the coefficients of the explanatory variables in the models are likely to be biased. Since the AER uses these estimated coefficients when rolling forward estimates of efficient opex to the base year, biased estimates of those estimated coefficients would result in unreliable estimates of efficient base year opex for individual DNSPs.
 - If the AER were to omit capex from the fitted relationship used to roll forward opex to the base year, then the AER is likely to underestimate the level of efficient opex required by DNSPs in the base year (since some of the effect of DNSP size would have been captured by the estimated coefficient associated with the capital input variable that was excluded from the roll forward model).

² Consultation Paper, p. 14.

³ For example, estimated elasticities for the three output variables are as follows for the LSE Cobb-Douglas model estimated using data between 2006 and 2021: 59.4%, 15.3% and 22.8% for customer numbers, circuit length and ratcheted maximum demand respectively.

- If the AER were to include capex in the fitted relationship used to roll forward opex to the base year (ie to avoid the problem identified in the point above), DNSPs could potentially ‘game’ by increasing their capital expenditure over the roll forward period to maximise their opex allowances over the next regulatory period. Such gaming would be feasible since the amount of capital input employed by the DNSP (eg capex) is (at least partly) within the DNSP’s control.

Concern 2: Endogeneity

The AER notes that including opex/capital ratios as an explanatory variable introduces a statistical problem known as endogeneity.⁴ Because opex would appear as both a dependent variable and as part of an explanatory variable in the models, the resulting estimates may be biased.

However, this issue was recognised in Essential Energy’s submission to the Consultation Paper. Essential Energy’s submission explained that any concerns about endogeneity may be mitigated by using an average opex/capital ratio over a long time period (eg the historical period used to perform the benchmarking analysis), rather than the opex/capital ratio in each year.⁵ This is because applying the average opex/capital ratio over a long historical period as the explanatory variable would sever the relationship between opex in a particular year (used as the dependent variable) and the opex/capital ratio employed as the explanatory variable. The use of a period-average ratio would not completely eliminate the endogeneity problem. However, any resulting bias in the estimation is likely to be negligible.

To demonstrate the extent to which averaging a DNSP’s opex/capital ratio reduces the severity of endogeneity, Energy Queensland engaged Frontier Economics to conduct a simulation exercise. Endogeneity results when an explanatory variable in a model is correlated with the error term in that model. In the simulation exercise, Frontier Economics simulated the correlation between the two potential explanatory variables and the error term. For this simulation exercise Frontier Economics used the results of the LSE Cobb-Douglas model estimated using data for the period 2006-21.

Frontier Economics generated new error terms based on the residuals of the estimated model⁶ and combined these new error terms with the estimated model to construct a new version of the opex variable and the associated opex/total cost ratios, both on an annual basis and averaged over the sample period. They then calculated the correlation between the two opex/total cost variables and the error term. This process was repeated 10,000 times.

The correlation between the log of the opex/total cost ratio and the error term is typically positive, as expected. This indicates the presence of endogeneity. On average, over 10,000 simulations, the correlation between the log of the annual opex/total cost ratio and the error term was 0.244. However, the correlation between the log of the average opex/total cost ratio and the error term was considerably smaller, at 0.006.

⁴ Draft Guidance Note, p. 52.

⁵ Essential Energy, Submission on the impact of capitalisation on benchmarking, 18 February 2022, p. 4.

⁶ In each simulation, for each Australian DNSP Frontier Economics randomly drew (with replacement) an Australian DNSP whose residuals were used as error terms for all years in the simulated data.

This illustrates that using averaged opex/capital ratios is likely to reduce the severity of the endogeneity problem dramatically.

Furthermore, as Essential Energy pointed out in its response to the Consultation Paper, the AER explained in the Consultation Paper that capitalisation practices may be treated as if they are exogenous, when assessing opex efficiency. Specifically, the AER stated that:

*“...we characterised capitalisation practices as an exogenous factor in that while it is somewhat under managerial discretion, this factor is unrelated to efficiency. Choices on accounting policies and capital inputs are management decisions, and therefore would not ordinarily be seen as an exogenous OEF. However, because these differences may lead to differences in opex or capital unrelated to efficiency, we considered this factor could be treated as if it was exogenous when assessing them separately.”*⁷

Concern 3: Consistency of data across jurisdictions

The AER argues in the Draft Guidance Note that the data required to construct the opex/capital ratios, particularly the data necessary to compute the Annual User Cost of Capital (AUC) are not sufficiently consistent between Australia, New Zealand and Ontario as to be reliable. In particular, the AER identifies differences in the methodologies used by the regulators in the three jurisdictions to determine the return of capital (i.e., regulatory depreciation) and return on capital. The AER notes, however, that it expects the methodological differences used to determine the capex reported by DNSPs in the three jurisdictions to be “relatively minor.”⁸

In relation to the AER’s concerns about data consistency, Energy Queensland submits the following:

- There do indeed appear to be differences in the methodologies used by regulators in the three jurisdictions to determine the return of capital and the return on capital.⁹ However, it is important to recognise that in each jurisdiction, the respective regulator is seeking to derive its best estimate of regulatory depreciation and the return on capital. The fact that each regulator uses a different approach to obtain that best estimate is immaterial. What ultimately matters is what each regulator believes is the best estimate of the return of capital and return on capital for each DNSP that it regulates—regardless of how each regulator obtained those estimates.
- When implementing Option 5 (its preferred option), the AER has allocated 100% of corporate overheads as opex for the Australian DNSPs alone but has not performed a similar allocation of corporate overheads for the Ontarian and New Zealand DNSPs used in the benchmarking analysis. Energy Queensland understands that the AER was unable to perform this allocation for the Ontarian and New Zealand DNSPs because it did not have access to the relevant data on corporate overheads for those DNSPs. It seems inconsistent for the AER to adopt Option 5 as its preferred option notwithstanding the lack of data required to apply that approach to the overseas DNSPs, but to reject

⁷ Consultation Paper, p. 6.

⁸ Draft Guidance Note, p. 55.

⁹ The Draft Guidance Note identifies a number of differences between the approaches used by regulators in Ontario and New Zealand on the one hand, and the AER on the other, when estimating the return on capital. It is worth noting that the way in which the AER’s previous adviser on benchmarking issues (Economic Insights) estimated the Weighted Average Cost of Capital (WACC), when calculating the AUC, did not in fact align with the methodology used by the AER to set the allowed rate of return for DNSPs. This point was explained in Essential Energy’s response to the Consultation Paper (p. 8).

Option 2 (which can be applied to all of the DNSPs used in the benchmarking analysis) on the grounds that some of the data may be inconsistent across jurisdictions. That is, the AER appears to be applying a lower standard for acceptance to Option 5 than to Option 2.

- Furthermore, Energy Queensland understands that the AER considers that the lack of data required to implement Option 5 for the overseas is addressed by the country dummy variables included in the econometric benchmarking models. It is unclear to Energy Queensland why the AER considers that the country dummy variables adequately address the lack of data between jurisdictions when applying Option 5, but that the country dummy variables would not address potential inconsistencies in the data between jurisdictions when applying Option 2. Once again, the reasoning applied by the AER to assess Options 5 and 2 appears inconsistent.
- The AER's concerns around data consistency are focussed mostly on information required to compute the AUC, which in turn is used to calculate the opex/total cost ratio. The Draft Guidance Note states that the AER expects the methodological differences underpinning the capex reported by DNSPs in Australia, New Zealand and Ontario are likely to be "relatively minor." If that is the case, the AER could implement Option 2 using the opex/totex ratio for all DNSPs rather than the opex/total cost ratio. The AER would only require data on opex and capex for each DNSP in order to compute the opex/totex ratio. The AER considers that these data are available and reasonably reliable and consistent across jurisdictions.¹⁰

¹⁰ Draft Guidance Note, p. 55.

Implementation issues with AER’s preferred option (Option 5)

Energy Queensland notes that the AER is seeking stakeholder views on several issues in relation to the implementation of Option 5. As outlined above, Energy Queensland’s preference is to address capitalisation differences using the econometric option (Option 2), however as Option 5 is the AER’s currently preferred option, comments regarding implementation issues are included in the table below.

| Issue | Current AER position (as per Guidance Note) | Energex and Ergon Energy Network comment |
|-------------------|---|--|
| Basis for the CAM | <p>The AER considers it is appropriate to continue the policy of adopting a frozen CAM for benchmarking, primarily due to the importance of maximising comparability for a given DNSP over time.</p> <p>The AER acknowledges there are pros and cons to the approach of using a frozen 2014 CAM or the current (ie regulatory year 2022 CAMs (backcast)).</p> | <p>Energy Queensland maintains its view that the opex used by the AER should reflect current capitalisation policies, CAMs and corporate structures.</p> <p>Currently, the backcast frozen 2014 CAM data is collected as unaudited data through an information request. There is a significant cost to the business of preparing this data on an annual basis. In addition, if the data was included in a new formal reporting obligation the data will be subject to assurance review, noting it will be assured as estimated financial data. There will be an additional significant cost associated with auditing this data each year.</p> <p>It is also noted that some changes to capitalisation practices, CAMs and corporate structures cannot be backcast with a high degree of accuracy. This is an issue currently facing Energex and Ergon Energy, where the structure of the businesses is now fundamentally different to that in 2014, following the formation of Energy Queensland. Backcasting with a high degree of accuracy for some of the changes is extremely burdensome, if not impossible.</p> <p>Importantly, given the impact of benchmarking on opex allowances, specifically the use of benchmarking to directly inform ‘efficiency adjustments,’ it is important that the opex used in the AER’s benchmarking is transparent and accurate. Furthermore, the opex used in benchmarking models should be consistent with the allowances set by the AER and what customers ultimately fund over the regulatory period. For these reasons, Energy Queensland supports the use of current CAM.</p> <p>Energy Queensland agrees with the AER that given the complexity of the CAM changes, backcasting using the current CAM will be a significant (albeit one-off) piece of work and will require some detailed engagement between the AER and Energy Queensland.</p> |

| Issue | Current AER position (as per Guidance Note) | Energex and Ergon Energy Network comment |
|---|--|---|
| Allocation of corporate vs network overheads | <p>The AER considers as corporate overheads are relatively homogeneous in nature, and demarcated relatively clearly from other cost categories, they should be included in opex for benchmarking purposes.</p> <p>The AER notes that the case for inclusion of network overheads in total opex is less clear, as the delineation between network overheads and other cost categories is less clear. The AER's preliminary view is not to include network overheads as part of this option.</p> | <p>Energy Queensland agrees with the AER's proposed position that only corporate overheads should be included in the analysis as the core components of corporate overheads are reasonably consistent between DNSPs. In addition, corporate overheads generally represent relatively stable and recurrent expenditure.</p> <p>Conversely, network overheads are more closely tied to the capex program, and therefore can represent more variable expenditure items which are dependent on the current level of capex spend.</p> |
| Percentage of capitalised overheads to be allocated to opex for benchmarking purposes | <p>The AER preference is for 100%, due to its simplicity, the recurrent nature of corporate overheads, and stakeholder support.</p> | <p>Energy Queensland agrees with the AER's proposed position that 100% of capitalised corporate overheads should be allocated to opex for benchmarking purposes.</p> <p>The treatment of corporate overheads in benchmarking is expected to be a material issue impacting benchmarking results. By allocating a fixed percentage (100%) of capitalised corporate overheads to opex for benchmarking purposes it seeks to account for differences in how these overheads are treated by the DNSPs. The data required is readily available and published in the Category Analysis RIN information.</p> |
| Commencement of the opex series for benchmarking | <p>The AER outlines three options including making 2009 the new start point, asking DNSPs to provide actual data for 2006-2008 or working with DNSPs to estimate data for 2006 to 2008.</p> | <p>Energy Queensland has a strong preference to change the starting year for the long benchmarking period to 2009.</p> <p>As stated previously, there are significant issues with backcasting data historically which impacts on the accuracy and transparency of the information.</p> <p>Data over the 2006 to 2008 period would require estimation (for all DNSP's) and may not provide a transparent or accurate representation for this period.</p> <p>In addition, Energy Queensland notes that 2009 represents the start of the period of AER regulation with the NSW and ACT DNSPs.</p> |
| Efficiency assessments in revenue determinations | <p>The AER notes that it would ensure that capitalised overheads are added to base year opex.</p> <p>The AER's preliminary view is that incorporating capitalised overheads within the opex benchmarking approach could complement the standard capitalised overheads forecasting approach in resets.</p> | <p>Energy Queensland has no concerns with the AER using capitalised overhead information from the RINs to ensure capitalised overheads are included in assessment of base year opex. Audited data is already provided for all DNSPs.</p> <p>Energy Queensland considers the current assessment approach of using trend analysis and movements in total capex specific to the DNSP appears appropriate.</p> |