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Dear Claire

Consultation on preliminary 2020 economic benchmarking results

Jemena Electricity Networks (Vic) Ltd (**JEN**) welcomes the opportunity to provide feedback on Economic Insight's (**EI**) preliminary 2020 economic benchmarking analysis and results. In the 2020 preliminary analysis, several changes and updates have been made by EI in relation to its benchmarking measures. However, these changes have not been part of any consultation process with the distribution network service providers (**DNSP**s). We provide below our response to these changes, the revised analysis and results –

1. Revision to JEN's Economic Benchmarking RIN data

In April 2020 JEN restated and resubmitted its Economic Benchmarking (**EB**) RIN for 2016-2018 with revised RAB information due to minor adjustments in JEN's net capex in 2016 and 2017.[1] We note that this revised EB RIN data on RAB has not been incorporated into the annual user cost (**AUC**) calculation in EI's benchmarking dataset.

In addition to this, we have also recently identified an improved approach in reporting customer numbers in the EB RIN for 2011 to 2019 that better reflects JEN's actual customer numbers. A separate submission to the AER on re-stating the customer numbers in EB RIN for 2011 to 2019 has also been made.[2]

We request the AER to update this year's benchmarking dataset to reflect the above resubmitted EB RIN data for JEN on both RAB/AUC and customer numbers.

2. Reliability of MTFP output weights

In this year's report, EI has corrected for a coding error in deriving output weights used in the Multilateral Total Factor Productivity (**MTFP**) and Multilateral Partial Factor Productivity (**MPFP**) measures. This correction resulted in significant weight shifting from

[1] JEN, *submitted the restated 2016-18 EB RIN together with 2019 Annual RIN submission, the relevant files are on the yourshare site at: "2019 CY RIN Response \ RIN B \ Resubmitted RAB files"*, 30 April 2020
[2] JEN, Letter to Kaye Johnstone, *Customer Numbers in our Economic Benchmarking RIN response*, 9 September 2020

customer numbers to circuit length and causes a substantial reshuffle of DNSPs' MTFP and MPFP rankings in favour of rural DNSPs. This dramatic movement in ranking highlights the volatility of results from changes in output weights and the statistical issues with the underlying method used in deriving the output weights. It must be emphasised that precisely for this reason these models should not be used deterministically but as a tool for AER to guide its overall judgement and decision making.

The new output weights derived also contradict with the findings from all four econometric models and the output weights that EI estimated in 2014 that identify customer numbers as the primary cost driver. We provide the comparison of output weights between MTFP/MPFP and econometric models in the table below –

Output weights	2014 MTFP/MPFP (used until 2017)	2018 MTFP/MPFP (before error correction)	2019 MTFP/MPFP (after error correction)	Average of 4 Econometric Models 2006-19*	Average of 4 Econometric Models 2012-19*
Customer numbers	45.8%	30.29%	18.52%	55.95%	53.35%
Circuit length	23.8%	28.99%	39.14%	15.48%	21.30%
Ratcheted maximum demand	17.6%	28.26%	33.76%	28.58%	25.35%
Energy throughput	12.8%	12.46%	8.58%	n/a	n/a

** We have averaged over all four models, however we note that second order coefficients in the translog models mean that the first order does not represent full elasticity.*

The above table shows that the original set of MTFP/MPFP output weights aligns more closely to the econometric models than the corrected set of weights. The econometric models have almost the same output specifications as opex MPFP, and the output weights are more statistically significant than the weights derived under EI's approach on Leontief cost functions.[3] Despite being derived using opex only, the results from the econometric models can be a reasonable cross-check against the MTFP/MPFP output weights - a stronger case exists for these to be used for opex MPFP. The large discrepancy between the new output weights used in MTFP/MPFP and econometric models raises concerns about the validity and reliability of the revised MTFP/MPFP results.

The difference between the 2014 and 2019 weights is very concerning. This shift in weights implies that the relationship between costs and outputs has changed substantially over the last five years compared to the previous fifteen years. If this was the case, we would expect to see a similar change in the econometric results, however, the coefficient on customer numbers has decreased by a much smaller amount.

[3] The MTFP output weights derived by Leontief cost functions produces less reliable results than econometric models as the parameters have insufficient degrees of freedom (13 observations to derive 5 parameters for each DNSP). In addition, the Leontief cost function results can be counterintuitive for some DNSPs, for example, 4 DNSPs' opex (AGD, ENX, SAP and AND) depend only on ratcheted maximum demand. CIT and TND's opex only depend on energy delivered. In practice, it is very unlikely that opex does not depend on circuit length or customer numbers.

We are extremely concerned how some of the conclusions made in annual benchmarking process appear to be inconsistent over time. For example, in 2018 annual benchmarking report, EI mentioned that[4] –

In figure 2.5 we see that growth in RMD and customer numbers provided the highest positive contributions to TFP change over the 12–year period. As noted in the previous section, customer numbers have grown steadily by 1.3 per cent annually over the whole period as customer numbers generally increase in line with population growth. As customer numbers have the largest weight of the output components at around 35 per cent and the second highest growth rate of the output components, they contribute just under 0.5 percentage points to TFP change over the period.

In the 2019 preliminary analysis the weight to customer numbers has all of a sudden reduced to 18% (about half of what was justified in the 2018 report) despite the increase in population. EI claims that the shift in weight is consistent with what was said by the networks in 2013 –

The reallocation of weight away from energy throughput and customer numbers towards circuit length and RMD in the corrected weights is consistent with views expressed by DNSP representatives on underlying output cost shares in the AER's economic benchmarking workshops in 2013 (AER 2013) and is consistent with what we would expect conceptually.

However, it is not clear how a 2013 expectation that did not include data for 2013-19 be used to justify change in weights in a 2020 report. Such significant shift in weights that are not reflected in results from the econometric models (that include data upto 2019) could result in credibility issues with the MTFP/MPFP techniques.

The significant shift in results also seems to be counter intuitive to us as solar and battery penetration continues to increase - the bi-directional power flow is likely to weaken the role of ratcheted maximum demand as an opex driver and strengthen the role of customer numbers as the driver in the near future. In the AER's 2019 annual benchmarking report, the AER acknowledges the impact of increasing Distributed Energy Resources (**DER**) on benchmarking results and expresses its intention to review changes to the output specifications in the near future to account for the impact of DER[5]. These have not been considered in the preliminary analysis.

The AER also noted in its 2019 annual benchmarking report that it categorises its benchmarking development work into the below three areas[6] –

1. ongoing incremental improvement in data and methods that support our annual benchmarking reporting
2. <u>specific issues that have the potential to materially affect the benchmarking results and should involve consultation with affected stakeholders</u>

[4] EI, Economic Benchmarking Results for the Australian Energy Regulator's 2018 DNSP Annual Benchmarking Report, November 2018, Pg. 10
[5] AER, *Annual Benchmarking Report - Electricity DNSPs*, November 2019, Pg. 43
[6] AER, *Annual Benchmarking Report - Electricity DNSPs*, November 2019, Pg. 4

3. changes and improvements in the way that we and other stakeholders use economic benchmarking in decision making

We believe that for a substantial output weight change in the MTFP/MPFP that materially impacts all DNSP's benchmarking positions, it falls in the second category which should warrant an consultation with all DNSPs before making the change.

We also recommend that the AER and EI investigate alternative methods to derive MTFP output weights in order to improve the reliability and stability of MTFP results. An alternative approach for opex MPFP the very least (if not MTFP) could be to use the average output weights derived by the existing econometric models as the output weights[7]. This could provide more reliable, stable and statistically significant estimates than its existing method. In doing so, the output 'energy throughput' could be removed as it is highly correlated to 'ratcheted maximum demand' (with correlation coefficient larger than 0.99 as shown in EI's study[8]). EI has removed 'energy throughput' from the econometric models for the same reason in 2014.

3. Econometric model specifications

In this year's preliminary results, the monotonicity violations on both SFA TL and LSE TL models become more apparent than last year, distorting the results of seven DNSPs on the 2012-19 dataset and three DNSPs on the 2006-19 dataset. For JEN, there are monotonicity violations on both SFA TL and LSE TL, leaving only two Cobb-Douglas models applicable to JEN. EI investigated two additional output specifications of the econometric models –

i. Model A: Two outputs - 'customer numbers' and 'circuit length', excluding 'ratcheted maximum demand' from the model;
ii. Model B: Two outputs - 'ratcheted maximum demand' and 'circuit length', excluding 'customer numbers' from the model.

Both model specifications experience fewer monotonicity violations than the original output specification. We welcome this new development and flexibility in approach when the original output specifications start to produce less sensible results.

As these two additional output specifications have shown stronger statistical performance compared to the current model specification, we encourage the AER to consider including the results of these additional model specifications in assessment of opex efficiency. Given the AER's interest in reviewing the output specifications in light of the increase in solar and battery penetration across the NEM, Model A is likely to better reflect the changing role of a weakening link between opex and 'ratcheted maximum demand' and a strengthening link between opex and 'customer numbers'. Therefore we believe Model A could provide a better indication of DNSPs' benchmarking performance in the future.

Model A also improves the comparability amongst econometric model results. EI noted in its report that under the current model specifications, the LSE TL modelling results are

[7] Subject to the models satisfying the monotonicity requirement.
[8] Economic Insights, *Economic Benchmarking of NSW and ACT DNSP Opex*, 17 November 2014, Pg. 32

an outlier for JEN, CIT and UED showing significantly lower efficiency scores[9]. Under Model A the LSE TL results are in line with the other models and no longer an outlier. Therefore Model A output specification can be meaningfully used by the AER in its assessment of cost efficiency.

4. Impact of CAM on benchmarking results

With the intention of removing the incentive for re-allocating costs between opex and capex to improve benchmarking positions, EI's practice has been to freeze DNSPs' Cost Allocation Methodologies (**CAM**) as of 2014. However, over time DNSPs have made CAM changes which, if applied retrospectively to 2006-14 dataset, can result in significant differences in efficiency scores on econometric models.

EI noted in its report that the AER has examined the impact of changing CAM on economic benchmarking data requirements. However, this analysis has not been provided to DNSPs to reflect upon how this will shape the benchmarking analysis and assessment of cost efficiency. We look forward to engaging with the AER on this matter.

We encourage the AER to examine benchmarking results based on DNSPs' most recent CAM recast to historical years in assessing DNSPs' cost efficiencies, that is to freeze the CAM as of 2019. This is because the incentive for re-allocating opex/capex to improve benchmarking outcomes has been removed by EI's approach to freezing 2014 CAM. Therefore the results based on the most recent CAM can provide a more up-to-date view of DNSPs' opex efficiencies and the actual costs borne by customers.

This new dataset that reflects the impact of changing CAM will also result in new output weights to be used for MTFP/MPFP analysis.

5. Update to opex price index

EI's benchmarking approach uses an opex price index to convert the nominal opex into an input quantity on comparable basis. EI derived this opex price index by applying a labour proportion (from in–house labour, field services contracts and non–field services contracts) of 59.7% and non-labour proportion of 40.3% to the ABS price indices[10]. The labour/non-labour split was calculated in 2017 based on the 3-year (2014 to 2016) weighted average labour/non-labour opex across all DNSPs. The AER has removed some outliers in this calculation due to data quality issues, as the opex labour/non-labour split was not available from the DNSP's RINs but was collected through a separate process at the time.

In 2019 and 2020, the AER has collected the opex labour/non-labour split from all DNSPs through the re-cast 2009-18 Category Analysis (**CA**) RIN[11] which have been submitted by DNSPs as part of the Reset RIN. In light of this more recent and reliable audited data available, we recommend the AER update the opex labour/non-labour split using the re-

[9] Economic Insights, *Economic Benchmarking Results for the Australian Energy Regulator's 2020 DNSP Annual Benchmarking Report*, 25 August 2020, Pg. 30
[10] Economic Insights, *Economic Benchmarking Results for the Australian Energy Regulator's 2017 DNSP Benchmarking Report*, 31 October 2017, Pg. 2
[11] RIN table '2.11.3 Labour/non-labour expenditure split' in recast CA RIN

cast CA RIN data with a 5-year (2015 to 2019) weighted average, following a similar approach as 2017.

Summary

We request the AER to consider the above feedback and the below summarised recommendations –

- The dataset needs to be updated for JEN's corrected EB RIN data for RAB, customer numbers and also for opex price index based on 5-year (2015 to 2019) weighted average.
- Apart from coding error a broader consultation is required prior to changing output weights that should cover any potential change in output specifications to account for the role of solar penetration on DNSP's costs and for 2019 CAM.
- The use of econometric model weights for opex MPFP/ MTFP should be tested in order to ensure consistency across the measures.
- It is worthwhile including in the benchmarking report the results from EI's new econometric model specifications with two outputs, especially Model A in light of increasing DER penetration.

In light of above recommendations we recommend the AER only updates the MTFP/MPFP output weights once it has undertaken a more comprehensive consultation with stakeholders.

We are committed to work constructively with the AER and welcome any further queries in relation to the above mentioned feedback. Please contact [redacted] if you would like to discuss this letter further.

Yours sincerely

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