Jemena Electricity Networks (Vic) Ltd

2016-20 Electricity Distribution Price Review Regulatory Proposal

Attachment 8-4

The role of benchmarking and predictive modelling

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GLOSSARY

AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
Augex	Augmentation Capital Expenditure
Capex	Capital Expenditure
DNSP	Distribution Network Service Provider
EDPR	Electricity Distribution Price Review
JEN	Jemena Electricity Networks
MTFP	Multifactor Total Factor Productivity
NEL	National Electricity Law
NEO	National Electricity Objective
NER	National Electricity Rules
Opex	Operating Expenditure
Repex	Replacement Capital Expenditure
PC	Productivity Commission
PFP	Partial Factor Productivity
RIN	Regulatory Information Notice
RPP	Revenue and Pricing Principles
SAIDI	System Average Interruption Duration Index

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1. SUMMARY

1. Under the National Electricity Rules (**NER**, or rules), the Australian Energy Regulator (**AER**) must either accept or not accept the forecast operating expenditure (**opex**) and capital expenditure (**capex**) for the 2016 electricity distribution price review (**EDPR**) period that is included in Jemena Electricity Networks' (**JEN**'s) proposal. The AER must accept the forecast that is included in JEN's proposal if it is satisfied that the forecast reasonably reflects the opex criteria.

2. In deciding whether or not it is satisfied that JEN's forecast reasonably reflects the opex criteria, the AER must have regard to the opex factors. The opex factors include—among other things—the most recent annual benchmarking report and the benchmark opex that would be incurred by an efficient distribution network service provider (**DNSP**) over the regulatory control period.

3. JEN considers that benchmarking and predictive modelling techniques—including replacement capex (**repex**) and augmentation capex (**augex**) models—can provide useful cross-check information. That is, benchmarking and predictive modelling may provide 'first-pass' information on whether a service provider's forecast costs are likely to represent prudent and efficient costs and, if not, to highlight aspects of the forecast which should be the subject of more detailed examination.

4. However, benchmarking and predictive modelling measures are necessarily limited in their ability to account for factors which may affect a service provider's forecast of expenditure requirements. Therefore, benchmarking and predictive modelling should not be used in a deterministic way to set expenditure allowances, and cannot displace the primary role of the service provider's proposal.

1.1 ROLE OF BENCHMARKING

5. JEN has carefully reviewed the AER's most recent annual benchmarking report and other relevant measures of benchmark opex that would be incurred by an efficient DNSP. The relevant benchmarking measures indicate:

   - *when looking at aggregate productivity measures*—JEN is among the top industry performers based on multifactor total factor productivity (**MTFP**) measures. JEN's historical total expenditure is around or above the threshold for the top quartile efficient frontier for the majority of MTFP models considered by the AER.
   - *when looking at partial productivity measures*— but when considered together, opex and capex partial factor productivity (**PFP**) measures do not indicate any inefficiency in JEN's historical expenditure. Although JEN's performance on opex PFP measures appears weaker than its performance on capex PFP measures, this is likely to be due differences in approach to opex/capex trade-offs and capitalisation of expenditure between networks. Our opex PFP performance has improved in the proposed 2014 base year, relative to 2013 (the last year of data used in the AER's annual benchmarking report).
   - *when looking opex specifically*—results of econometric modelling undertaken by Huegin suggest that JEN is at or above the threshold for top quartile efficiency across the industry.[1]

6. Overall, benchmarking measures do not indicate any inefficiency in JEN's historical operating and capex. Therefore JEN considers that its historical operating and capex provides a reasonable basis for forecasting over the 2016 EDPR period.

[1] Huegin, *Efficiency and Growth for the 2016-20 regulatory period: Jemena Electricity Networks (Vic) Ltd Productivity Study*, April 2015, pp. 40–41.

7. JEN notes that in its recent draft decisions for the NSW and ACT DNSPs, the AER has used benchmarking measures deterministically. That is, benchmarking has been used by the AER to determine what it considers to be an efficient opex allowance for each business, rather than as one tool to inform the AER's assessment of whether proposed forecasts reasonably reflect the expenditure criteria.

8. There are two critical problems with the AER's use of benchmarking in the ACT and NSW draft decisions to determine the allowance for forecast opex:

   - **Excludes relevant evidence.** First, the NER do not allow for deterministic use of benchmarking to the exclusion of all other evidence—rather, benchmarking is one tool which can be used to assess an expenditure proposal, but it cannot substitute for the primary role of that proposal.
   - **Not address all opex objectives.** Second—and putting aside the legal requirement to start with DNSP's proposal—benchmarking could only have a deterministic role if the AER is satisfied that the results of its benchmarking analysis will reflect the opex required by the ACT and NSW DNSPs to achieve the operating expenditure objectives. This means that the AER's benchmarking model must be capable of properly taking into account all factors which may bear on each DNSP's ability to achieve the operating expenditure objectives, including those set out in the DNSP's proposal.

     The AER's use of benchmarking to determine the forecast opex allowances in the ACT and NSW draft decisions is not appropriate because it is not an assessment of whether the forecast reasonably reflects the operating expenditure criteria. This is particularly so in light of the fact that the AER's benchmarking model is not capable of accounting for all factors that are relevant to the amount of operating expenditure that has been incurred, or is forecast to be incurred, in respect of any particular network. The use of benchmarking in this way therefore gives rise to a real risk that any substitute forecast based on benchmarking will not promote the National Electricity Objective (**NEO**) and potentially lead to outcomes that are inconsistent with the revenue and pricing principles.

9. For the above reasons, benchmarking measures should not be used in a similarly deterministic way in the AER's decision on JEN's regulatory proposal. Where benchmarking is used deterministically to set a DNSP's expenditure forecast, the AER cannot reasonably be satisfied that:

   - any substitute forecast amount reasonably reflects the opex criteria, or
   - the business will have a reasonable opportunity to recover the efficient costs it incurs in supplying regulated services.

1.2 ROLE OF PREDICTIVE MODELLING

10. Predictive models—such as repex (see attachment 7-11) and augex (see attachment 7-12) models—can play a role in checking bottom up capex forecasts. These models can highlight the areas where unexpected variation from past trends has occurred, so that the causes of these variations can be examined in detail.

11. However, it is important to recognise the limitations of predictive modelling, including that:

    - it assumes that past expenditure is a good predictor of future needs
    - in repex modelling, asset age is used as an imperfect proxy for asset condition, and
    - it is not clear that all of the underlying data provided by networks to the AER—in response to regulatory information notices (**RIN**s)—is robust.

2. RELEVANT RULES AND LAW

2.1 PROVISION FOR BENCHMARKING IN THE RULES

12. Under the NER, the AER must make decisions on whether or not to accept JEN's forecasts of opex. More specifically, in relation to JEN's opex proposal, the AER must either:[2]

- acting in accordance with clause 6.5.6(c) of the NER, accept the total of the forecast opex for the regulatory control period that is included in JEN's proposal, or
- acting in accordance with clause 6.5.6(d) of the NER, not accept the total of the forecast opex for the regulatory period that is included in JEN's proposal—in this case the AER must set out its reasons for that decision and an estimate of the required opex for the regulatory control period that the AER is satisfied reasonably reflects the opex criteria, taking into account the opex factors.

13. The AER must accept the forecast that is included in JEN's proposal if the AER is satisfied that the forecast reasonably reflects each of the following (the opex criteria):[3]

- the efficient costs of achieving the opex objectives
- the costs that a prudent operator would require to achieve the opex objectives, and
- a realistic expectation of the demand forecast and cost inputs required to achieve the opex objectives.

14. The opex objectives are set out in clause 6.5.6(a) of the NER, and include:[4]

- meet or manage the expected demand for standard control services over that period
- comply with all applicable regulatory obligations or requirements associated with the provision of standard control services
- to the extent that there is no applicable regulatory obligation or requirement in relation to the quality, reliability or security of supply, then to the relevant extent maintain the quality, reliability and security of supply
- maintain the safety of the distribution system through the supply of standard control services.

15. In deciding whether or not the AER is satisfied as referred to in paragraph (c), the AER must have regard to the opex factors, which include:

> *…the most recent annual benchmarking report that has been published under rule 6.27 and the benchmark operating expenditure that would be incurred by an efficient Distribution Network Service Provider over the relevant regulatory control period…*

16. The AER must also have regard to several other opex factors, including:

- the actual and expected opex of the DNSP's during any preceding regulatory control periods

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2 NER, cl 6.12.1(4).

3 NER, cl 6.5.6(c).

4 NER, cl 6.5.6(a).

- the relative prices of operating and capital inputs, and
- the substitution possibilities between operating and capex.

17. The reference to the DNSP's actual expenditure in prior periods in the opex factors recognises that—where effective efficiency incentive mechanisms are in place—a DNSP's actual costs will provide strong guidance as to what is an efficient level of opex. This will certainly be the case for each of the Victorian DNSPs, because efficiency incentive mechanisms have been in place over a long period in Victoria (since 2001) and each of the DNSPs has been under private ownership for that entire period—meaning that they would be expected to respond to the incentives created by those mechanisms.[5]

18. In the case of JEN, it is clear that we have responded to incentive mechanisms, having achieved efficiency savings in every regulatory period in which there has been such a mechanism in place.[6]

2.2 BACKGROUND TO RECENT AMENDMENTS TO THE EXPENDITURE ASSESSMENT RULES

19. Use of benchmarking and predictive modelling has been allowed under the NER since the rules for expenditure assessment were first introduced into Chapter 6 of the NER. The factors that the AER must have regard to in assessing proposed forecasts have always included 'benchmark operating expenditure that would be incurred by an efficient Distribution Network Service Provider over the regulatory control period'.

20. There were two changes made to the NER in November 2012 relevant to the role of benchmarking in the AER's assessment of forecast expenditure:

- **the benchmarking factor**—was amended to also refer to the most recent annual benchmarking report published by the AER. As noted above, this factor now refers to:

  > *…the most recent annual benchmarking report that has been published under rule 6.27 and the benchmark operating expenditure that would be incurred by an efficient Distribution Network Service Provider over the relevant regulatory control period…*

- **the second opex criteria**—was amended to remove the reference to the circumstances of the DNSP. Whereas previously this criterion referred to 'the costs that a prudent operator in the circumstances of the relevant Distribution Network Service Provider would require to achieve the operating expenditure objectives', it now just refers to 'the costs that a prudent operator would require to achieve the operating expenditure objectives'.

21. The first of these changes was consequential on the new requirement for the AER to publish an annual benchmarking report—which was a change directed at providing greater transparency and improving the ability of consumers to participate in the regulatory determination process.[7] It does not appear that this was intended to substantively change the way in which the AER undertook expenditure assessment.

22. The second change was intended to clarify the ability of the AER to undertake benchmarking and have regard to the results of this when assessing expenditure proposals. The AER had expressed a concern that the reference to 'in the circumstances' in the opex criteria had restricted their ability to undertake benchmarking.

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5 The background to the development and application of incentive regulation in Victoria is set out by the Supreme Court in: *TXU Electricity Limited (formerly known as Eastern Energy Ltd) v Office of the Regulator-General* [2001] VSC 153.

6 see section 1 of Attachment 5-3

7 AEMC, Rule Determination: National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012; National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012, 29 November 2012, pp 25-26.

The Australian Energy Market Commission (**AEMC**) sought to address the AER's concern by removing the reference to 'in the circumstances' in the opex criteria, but emphasised that this change does not enable the AER to disregard the individual circumstances of each DNSP. The AEMC noted:[8]

> *The Commission is of the view that the removal of the "individual circumstances" clause 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. Should the phrase remain, it appears that the AER's interpretation of it may restrict it from utilising appropriate benchmarking approaches to inform its decision making.*
>
> *The Commission considers that the removal of the "individual circumstances" phrase will clarify the ability of the AER to undertake benchmarking. It assists the AER to determine if a NSP's proposal reflects the prudent and efficient costs of meeting the objectives. That necessarily* ***requires a consideration of the NSP's circumstances as detailed in its regulatory proposal****.* [Emphasis added]

23. Similarly in its guidance on the final rule, the AEMC reemphasised the primacy of the business' proposal as the starting point for expenditure assessment. The AEMC stated:[9]

> *The NSP's proposal is necessarily the procedural starting point for the AER to determine a capex or opex allowance. The 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 decision.*

24. The AEMC also emphasised that exogenous factors ought to be taken into account in any benchmarking analysis:[10]

> *…when undertaking a benchmarking exercise, circumstances exogenous to a NSP should generally be taken into account, and endogenous circumstances should generally not be considered. In respect of each NSP, the AER must exercise its judgement as to the circumstances which should or should not be included. However exogenous factors to be taken into account are likely to include:*
>
> - *geographic factors: topography and climate;*
> - *customer factors: density of the customer base (urban v rural), load profile, mix of customers between industrial and domestic;*
> - *network factors: age, mix of underground and overhead lines, though this will depend on the extent to which this is at the election of the NSP; and*
> - *jurisdictional factors: reliability and service standards.*

25. Prior to the AEMC rule change process, the AEMC and the Productivity Commission (**PC**) had considered the potential for benchmarking to have a greater role in the regulatory determination process. The key conclusion

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8 AEMC, Rule Determination: National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012; National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012, 29 November 2012, p 107.

9 AEMC, Rule Determination: National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012; National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012, 29 November 2012, p 111.

10 AEMC, Rule Determination: National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012; National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012, 29 November 2012, p 113.

from both of these reviews was that benchmarking should not be used in a deterministic way to set revenue allowances, at least until the benchmarking methodology had been appropriately tested.[11]

26. In its review into use of TFP methodologies for the determination of prices and revenues, the AEMC found that a number of conditions would need to be satisfied in order for such a methodology to be appropriate, and that such conditions are not likely to be met at that time. The AEMC found that:[12]

> *Crucially, the current lack of a sufficiently robust and consistent data-set means that it could be too problematic to reconstruct existing data for the purpose of a TFP methodology*

27. and that the lack of data prevents:[13]

> *proper testing of the other conditions needed for a TFP methodology.*

28. The AEMC therefore concluded that a two-stage process should be adopted for any changes to the energy rules to allow for use of TFP methodologies:

1. first, an initial rule to require service providers to provide specified regulatory data that would permit the AER to test for the conditions necessary for a TFP methodology and to undertake initial paper trials of the calculations, and
2. second—and only after trials had been undertaken—there would need to be a detailed design of a TFP methodology and the making of a rule allowing for a TFP methodology to be adopted.[14]

29. The more recent study by the PC into use of benchmarking concluded that:[15]

> *At this stage, benchmarking — which compares the relative performance of businesses — is too unreliable to set regulated revenue allowances. Nevertheless, greater and more effective use of benchmarking could better inform the regulator's decisions.*

30. The PC recommended that in any of the next rounds of regulatory determinations, the AER should not use aggregate benchmarking as the exclusive basis for making a determination. Instead it should use aggregate benchmarking as a diagnostic tool in responding to business cost forecasts.[16]

31. It was also recommended by the PC that the AER collaborate with other leading regulators, academic experts and global commercial specialists to enable robust meta-analysis of electricity network benchmarking results from individual country—and where credible, multi-country—studies, and that the AER should submit its major benchmark analyses of electricity networks for independent expert peer review.[17]

32. As discussed below, the pre-conditions for using benchmarking to determine or set forecast opex allowances, as set out by the PC and the AEMC, have not yet been satisfied. As far as JEN is aware, the AER's benchmarking models have not been subject to peer review or consultation other leading regulators, academic experts or global commercial specialists.

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11 AEMC, Review into the use of Total Factor Productivity for the determination of Prices and Revenues: Final Report, 30 June 2011, p ii; Productivity Commission, Electricity Network Regulatory Frameworks, Report No. 62, 9 April 2013, p. 3.

12 AEMC, Review into the use of Total Factor Productivity for the determination of Prices and Revenues: Final Report, 30 June 2011, p ii.

13 AEMC, Review into the use of Total Factor Productivity for the determination of Prices and Revenues: Final Report, 30 June 2011, p ii.

14 AEMC, Review into the use of Total Factor Productivity for the determination of Prices and Revenues: Final Report, 30 June 2011, p ii.

15 Productivity Commission, *Electricity Network Regulatory Frameworks*, Report No. 62, 9 April 2013, p. 3.

16 Productivity Commission, *Electricity Network Regulatory Frameworks*, Report No. 62, 9 April 2013, p. 54 (recommendation 8.5).

17 Productivity Commission, *Electricity Network Regulatory Frameworks*, Report No. 62, 9 April 2013, p. 55 (recommendations 8.9 and 8.10).

2.3 RELEVANT REQUIREMENTS OF THE NEL

33. The key requirements of the National Electricity Law (**NEL**) include:

- when assessing JEN's expenditure proposal, the AER is required to do so in a manner that will or is likely to contribute to the achievement of the NEO[18]
- where there are two or more possible decisions in relation to JEN's proposal that will or are likely to contribute to the achievement of the NEO, the AER is required to make the decision that the AER is satisfied will or is likely to contribute to the achievement of the NEO to the greatest degree,[19] and
- to the extent the AER's decision involves the exercise of a discretion, the AER must take into account the revenue and pricing principles (**RPP**) in section 7A of the NEL[20]—the RPP include that a service provider should be provided with a reasonable opportunity to recover at least its efficient costs.

34. The NEL requires that regulated revenues and prices are determined in a manner that gives a service provider a reasonable opportunity to recover at least the efficient costs it incurs in providing regulated services. If such an opportunity is not provided, there is a risk of underinvestment and adverse consequences for consumers over the long term.

2.4 IMPLICATIONS

35. It is clear from the NER themselves and the relevant secondary materials that benchmarking cannot substitute for proper consideration of the DNSP's proposal and the particular circumstances of the DNSP as set out in that proposal.

36. This is because:

- **Benchmark is but one relevant piece of information**—the ultimate role of benchmarking is to inform the AER's assessment of whether JEN's forecast opex reasonably reflects the opex criteria. That is, results of a benchmarking exercise are not, in themselves, to be taken as evidence of the amount of opex that would satisfy the criteria. Rather, these results are to be taken into account (along with other factors) in the ultimate assessment.
- **Opex criteria require more than just benchmarking**—these criteria include:
  - the efficient costs of achieving the opex objectives, and
  - the costs that a prudent operator would require to achieve the opex objectives.

  Thus, the critical question for the AER is: what is the level of opex that would be required by an efficient operator, acting prudently, to achieve the opex objectives? This question can only be answered by reference to the relevant regulated network and by examining and understanding what the relevant operator of that network forecasts as required operating expenditure over the relevant regulatory period.

[18] NEL, s 16(1)(a).

[19] NEL, s 16(1)(d)(i).

[20] NEL, s 16(2)(a)(i).

- **Benchmarking is not DNSP-specific**—the opex objectives refer to matters which are clearly DNSP-specific—for example, maintaining the reliability, safety and security of the distribution system (i.e. the particular system operated by that DNSP) and complying with all applicable regulatory obligations or requirements. Therefore, while benchmarking may have a role in the AER's assessment, its role will necessarily be limited to the extent that it does not pick up all DNSP-specific factors, such as jurisdictional service standards, network age and condition, climatic factors and demographics of the areas served by each DNSP

- **Benchmarking is not a substitute for regulatory proposals**—in making changes to the NER to facilitate greater use of benchmarking, the AEMC stated that 'benchmarking is but one tool the AER can utilise to assess NSPs' proposals' *and* 'it is not a substitute for the role of the NSP's proposal'. The AEMC also emphasised that the changes to the NER '[do] not enable the AER to disregard the circumstances of a NSP in making a decision on capex and opex allowances'. The AEMC said that its changes were intended to 'clarify the ability of the AER to undertake benchmarking'.

37. The legal framework does not allow for deterministic use of benchmarking to the exclusion of all other evidence. Benchmarking is one tool which can be used to assess JEN's expenditure proposal, but it cannot substitute for the primary role of that proposal.

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3. USE OF BENCHMARKING MEASURES AND PREDICTIVE MODELLING AS A CROSS-CHECK

38. JEN considers that benchmarking and predictive modelling techniques can provide useful cross-check information. That is, benchmarking and predictive modelling results may provide information on whether a service provider's revealed costs represent prudent and efficient costs, and if not, identifying particular categories of expenditure that should be the subject of further examination and testing.

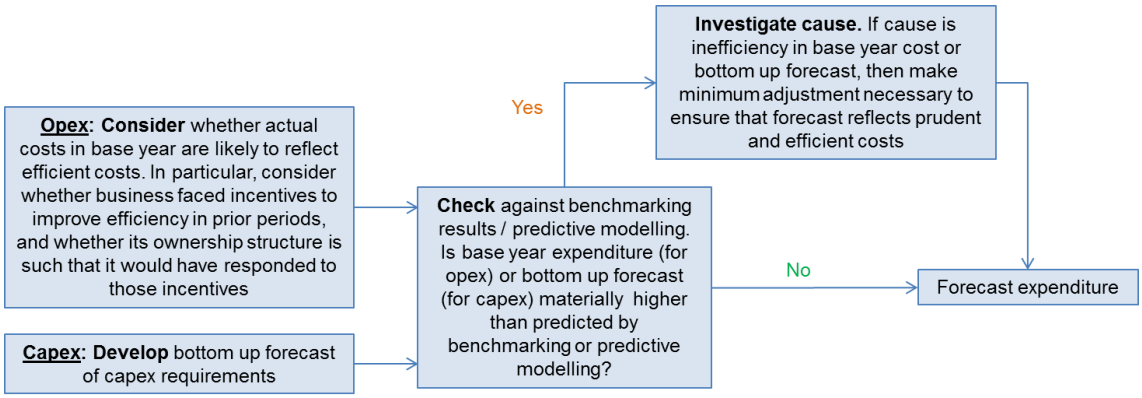
39. Given the strong incentives for businesses to improve efficiency over time, it may be expected that revealed costs would reflect prudent and efficient costs. The Victorian electricity businesses in particular have faced strong efficiency incentives over a long period of time—efficiency incentive schemes have been in place in Victoria since 2001, and the Victorian electricity businesses have been privately owned during that entire period. It may be expected that the Victorian electricity businesses would have responded to these incentives by improving the efficiency of expenditure over time.

40. However, JEN acknowledges that there is a role for benchmarking and predictive modelling measures to check whether individual businesses expenditure proposals measure up to industry standards of efficiency, especially where revealed costs are not used directly to forecast expenditure or if it is unclear whether a business has not responded to incentives to spend efficiently.

41. If a proposal fails this cross-check—such that it appears that there may be some inefficiency in base year expenditure—then the business should investigate and understand the reasons for this. Depending on the reasons for such a result, the proposal may need to be amended.

42. Figure 3–1 sets out our proposed use of benchmarking and predictive modelling. The remainder of this section explains this process in detail.

Figure 3–1: JEN's proposed use of benchmarking and predictive modelling



3.1 EFFICIENCY OF BASE YEAR OPEX

43. Where a business has operated under effective efficiency incentives, and has had an ownership and governance structure which might be expected to respond to such incentives, its actual opex in past periods is likely to reflect efficient expenditure.

44. The AER recognises this in its expenditure forecast assessment guidelines, noting:[21]

> *For recurrent expenditure, we prefer to use revealed (past actual) costs as the starting point for assessing and determining efficient forecasts. If a NSP operated under, and responded to, an effective incentive framework, actual past expenditure should be a good indicator of the efficient expenditure the NSP requires in the future. The ex-ante incentive regime provides an incentive to improve efficiency (that is, by spending less than the AER's allowance) because NSPs can retain a portion of cost savings made during the regulatory control period.*

45. There may of course be some circumstances in which incentives have not been effective, or where businesses have not responded to incentives. For example, in some jurisdictions incentive schemes have only been in operation for a short period. It has also been noted that government-owned businesses may not respond as keenly to efficiency incentives as privately owned businesses.[22]

46. However, in the case of JEN it may be expected that its actual expenditure would reflect prudent and efficient costs. Efficiency incentive mechanisms have been in place over a long period in Victoria (since 2001) and JEN has operated under private ownership for that entire period.[23]

47. In the case of JEN, it is clear that we have responded to incentive mechanisms, having achieved efficiency savings in every regulatory period in which there has been such a mechanism in place (see section 1 of Attachment 5-3).

3.2 AVAILABLE BENCHMARKING AND PREDICTIVE MODELLING TECHNIQUES

48. This section considers two techniques that can be used to check or test proposed expenditure allowances:

- **Economic benchmarking**—compares expenditure over time and/or against other businesses
- **Predictive modelling**—uses information on either network age and replacement cycle (in the case of repex models) or forecast demand (in the case of augex models) to estimate expected expenditure requirements.

49. Each of these methods has strengths and weaknesses, which are summarised in Table 3–1 below.

Table 3–1: Available modelling techniques

Method / technique	Strengths	Weaknesses
Parametric benchmarking methods, such as ordinary least squares regression and stochastic frontier analysis	Can partly account for exogenous factors, if these are parameterised and the functional form is properly specified.	Data-intensive and can be affected by econometric issues such as multicollinearity.
Non-parametric benchmarking methods such as PFP and MTFP	Relatively simple and transparent.	Do not take into account the effect of environmental variables or network scale.

21 AER, *Better Regulation: Explanatory Statement Expenditure Forecast Assessment Guideline*, November 2013, p. 42.

22 For example, ACCC Chairman Rod Sims has noted that Government ownership versus private ownership affects incentives to drive efficiency and productivity change (P Durkin, 'ACCC calls for big asset sell-off', *Australian Financial Review*, 6 January 2014).

23 The background to the development and application of incentive regulation in Victoria is set out by the Supreme Court in: *TXU Electricity Limited (formerly known as Eastern Energy Ltd) v Office of the Regulator-General* [2001] VSC 153.

Method / technique	Strengths	Weaknesses
Predictive models, such as augex and repex models	Simple and transparent.	Rely on age-based proxies for network condition and assumptions about the relationship between input variables and expenditure requirements.

50. The available benchmarking techniques, and their strengths and weaknesses, are explained in detail in an expert report from Huegin (see Attachment 8-5).

51. Given the strengths and limitations of the various methods, no one method should be relied on in isolation or as a substitute to the regulatory proposal. Rather, information from a range of measures should be taken into account.

3.3 THE IMPORTANCE OF ENVIRONMENTAL FACTORS

3.3.1 RELEVANT DIFFERENCES BETWEEN JEN AND OTHER BUSINESSES

52. The Huegin report identifies a range of environmental factors which are likely to impact on the efficient costs of achieving the expenditure objectives. These include:

- demographic factors—such as population density, customer density and the typical size and type of customers
- network design and maintenance practices, and
- service standards.

53. There are important differences between JEN and other networks on each of these dimensions. For example:

- **High opex to capex ratio.** JEN has a relatively high ratio of operating to capex, compared to most other networks. Huegin notes that JEN consistently has a higher opex to output index ratio relative to the industry and a consistently lower asset to output index ratio.[24] This may be due to either differences in accounting practices between networks (e.g. JEN capitalises less expenditure than other networks) and/or different approaches to the opex / capex trade-off.
- **Higher service levels.** JEN generally maintains higher service levels compared to other networks. For example Huegin notes that SAIDI[25] for JEN is the third lowest out of the 13 NEM distribution businesses.[26] JEN's commitment to maintaining these service levels is supported by feedback from our customers.[27]
- **Small scale.** JEN has one of the smallest distribution areas in Australia and therefore its operations are on a relatively small scale, compared to most other DNSPs.
- **Legacy network design features**. While we do not have visibility of other DNSPs' detailed network design, it is likely that JEN's network design and asset age profile differs from that of other businesses.[28]

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24 Huegin, *Efficiency and Growth for the 2016-20 regulatory period: Jemena Electricity Networks (Vic) Ltd Productivity Study*, April 2015, p. 38.

25 System average interruption duration index (**SAIDI**).

26 Huegin, *Efficiency and Growth for the 2016-20 regulatory period: Jemena Electricity Networks (Vic) Ltd Productivity Study*, April 2015, p. 29, Figure 6.

27 See Table 5.1 in Attachment 4-1

- **Asset lifecycle and condition of existing assets**. JEN's decision-making in relation to asset replacement and maintenance expenditure (and trade-offs between these two types of expenditure) are informed by the condition of its existing network assets. Asset condition can vary significantly between businesses, leading to differences in how opex/capex trade-offs are approached.
- **Higher population density and customer density.** JEN's distribution area has relatively high population density and customer density, compared to other businesses. Huegin notes that JEN has the second highest customer density and third highest population density out of the 13 NEM distribution businesses.[29] This, along with differing customer type, will have implications on the type and costs of assets deployed in the JEN network.

3.3.2 ABILITY OF BENCHMARKING AND PREDICTIVE MODELS TO ACCOUNT FOR THESE DIFFERENCES

54. Benchmarking and predictive models are necessarily limited in their ability to account for exogenous factors which may impact on individual businesses' expenditure requirements.

55. As noted by Huegin, MTFP benchmarking models do not consider (or consider fully) the effect of environmental variables or other exogenous factors such as network scale.[30] This also appears to be acknowledged by the AER in its annual benchmarking report where it is noted that there may be operating environment factors outside the control of service providers that are unaccounted for in MTFP results.[31]

56. On the other hand, parametric methods **can** take into account these factors to some extent. However, the extent to which parametric models **do** take in account exogenous factors will depend on the model specification, dataset and the explanatory variables that are included. It is likely that in any parametric model there will be some exogenous factors which simply cannot be accounted for due to limitations of the dataset and/or functional form used.

57. Predictive models are similarly limited in how they consider differences between networks. In particular, repex models are limited in the extent to which they can account for differences in asset condition—a key driver of replacement requirements—between businesses. Repex models typically rely on asset age as an imperfect proxy for asset condition. Other factors (besides asset age) which may impact on asset condition are not considered.

3.3.3 IDENTIFYING RELEVANT PEER NETWORKS WITHIN THE BENCHMARK SET

58. As a framework for its analysis, Huegin groups networks according to their broad characteristics and environmental factors. This allows for more comparison of productivity metrics within broad peer groups which share similar characteristics.

59. Huegin's classifications are shown in Figure 3–2 below. JEN is grouped with other small area, densely populated urban networks.

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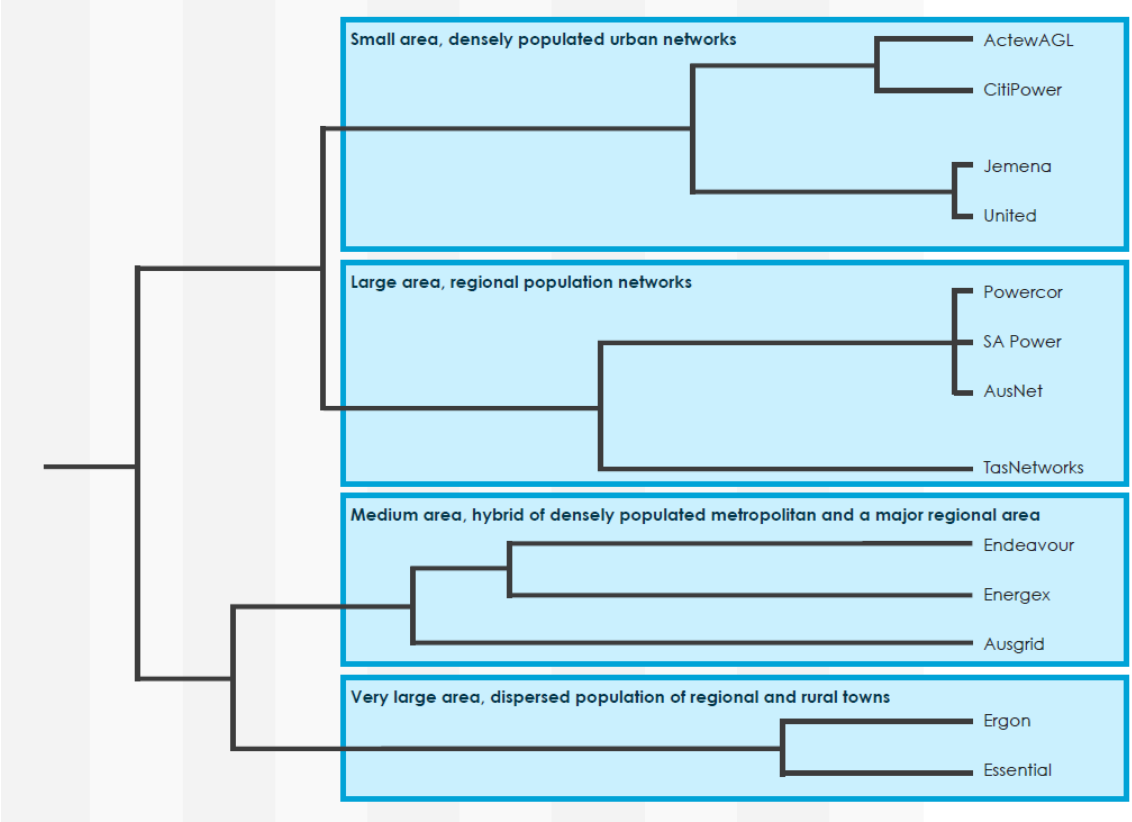
28 see Box 7—7 of Jemena Electricity Networks (Vic) Ltd, *Regulatory Proposal 1 January 2016 - 31 December 2020*, 30 April 2015

29 Huegin, *Efficiency and Growth for the 2016-20 regulatory period: Jemena Electricity Networks (Vic) Ltd Productivity Study*, April 2015, p. 29, Figure 6.

30 See, for instance: Huegin, *Efficiency and Growth for the 2016-20 regulatory period: Jemena Electricity Networks (Vic) Ltd Productivity Study*, April 2015, p. 18

31 AER, *Electricity distribution network service providers: Annual benchmarking report*, November 2014, p. 29.

Figure 3–2: Huegin analysis of peer groups



Source: Huegin (Attachment 8-5), Figure 5.

60. Heugin finds that at the four class assumption level, JEN is more closely paired to United Energy (a pairing that endures beyond the 10 class assumption) than it is to ActewAGL or CitiPower (which split away at the eight class assumption).[32]

3.4 INFORMATION FROM RELEVANT BENCHMARKING MEASURES

3.4.1 INFORMATION IN THE AER'S ANNUAL BENCHMARKING REPORT

61. The AER's annual benchmarking report contains an analysis of the relative performance of JEN against other networks on a number of measures, including:[33]

- partial indicators—such as opex per customer, asset cost per customer and total cost per customer
- multilateral total factor productivity, and
- partial factor productivity of capital and opex respectively.

[32] Huegin, *Efficiency and Growth for the 2016-20 regulatory period: Jemena Electricity Networks (Vic) Ltd Productivity Study*, April 2015, p. 26.

[33] AER, *Electricity distribution network service providers: Annual benchmarking report*, November 2014.

62. The annual benchmarking report indicates that:[34]

- *on the AER's MTFP measure*—JEN's performance is near the top of the overall comparator set and in line with its peers. JEN ranks fourth (out of 13 networks) in 2013 on this measure
- *on the AER's measure of capex PFP*—JEN ranks second out of 13 networks
- *on the AER's measure of opex PFP*—JEN is in the middle of the overall comparator set, ranking seventh out of 13 networks. As noted by Huegin, JEN's performance on common opex PFP measures is broadly in line with its peers. JEN ranks below CitiPower and UED, but ahead of ActewAGL on this measure.

63. When considered together, these metrics indicate that JEN's overall productivity is in line with industry-leading businesses that are identified in the AER's benchmarking report. The fact that JEN's performance appears slightly better on capital PFP measures—compared to opex PFP measures—is likely to reflect differences between JEN and other businesses in terms of asset lifecycles, capitalisation policies and how we approach opex / capex trade-offs.

64. The AER accepts that there are likely to be operating environment factors outside the control of service providers that are not accounted for in these MTFP and PFP results.[35] However, the AER does not specifically identify these factors.

65. Bearing in mind this limitation, JEN considers that the results set out in the AER's most recent annual benchmarking report do not indicate that JEN historical expenditure is inefficient. If anything, the results set out in the annual benchmarking report suggest that JEN is likely to be among the top performers in terms of the efficiency of its historical expenditure.

66. After reviewing these results and conducting its own analysis (discussed below), Huegin concludes that JEN cannot be considered to be inefficient.[36] Huegin notes that JEN's historical total expenditure is around or above the threshold for the top quartile efficient frontier in the majority of MTFP models considered by the AER. Huegin also observes that while JEN's opex PFP results are generally lower than its MTFP results, consideration of both opex and capex PFP results suggests that JEN's opex PFP performance is not symptomatic of managerial inefficiency.

67. Therefore we consider that it would be incorrect to conclude that JEN's historical expenditure is inefficient based on these results, and seek to reduce base year opex for forecasting purposes on that basis. This could only be based on an incorrect attribution of the observed differences between JEN's opex and capex PFP results to managerial inefficiency, rather than to the limitations of the models themselves. Such an approach would ultimately harm consumers to the extent that it reduces our ability to fund and deliver services.

3.4.2 OTHER BENCHMARKING MEASURES

68. Huegin identifies an alternative approach to that set out in the annual benchmarking report, being the econometric method. While econometric methods were not used in the AER's annual benchmarking report, they were relied on by the AER in the NSW draft decisions.

69. As noted above, econometric methods can have some advantages over non-parametric methods. However the usefulness of these methods depends heavily on the quality of the model specification and data.

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34 AER, *Electricity distribution network service providers: Annual benchmarking report*, November 2014.

35 Huegin, *Efficiency and Growth for the 2016-20 regulatory period: Jemena Electricity Networks (Vic) Ltd Productivity Study*, p. 29.

36 Huegin, *Efficiency and Growth for the 2016-20 regulatory period: Jemena Electricity Networks (Vic) Ltd Productivity Study*, pp. 32–33, 38—39, 41–42.

70. JEN has significant concerns with the econometric methods relied on by the AER in the NSW draft decisions. We consider that the results of the econometric models developed by Economic Insights and relied on by the AER are likely to be misleading, due to errors in the Economic Insights methodology and shortcomings in the underlying data. Key issues with the Economic Insights method include:

- **Pooling of Australian and international data.** The decision of Economic Insights to pool Australian and international data is not supported by analysis of the comparability of businesses included in the pooled dataset. In fact, the evidence shows that there are significant differences between Australian businesses and the Canadian and New Zealand businesses included by Economic Insights which may mean the relationships between cost drivers and productivity may be very different. In a report for Networks NSW, Frontier Economics found that its statistical testing did not support poolability of the Australian and international data.[37] Frontier concludes that differences in operating circumstances between Australian and international networks (i.e. latent heterogeneity in the sample) is likely to explain most of the variation in performance.

  Huegin considers that the introduction of international data is of a sufficient concern that in their view, it is not reasonable to rely on the results of the AER's econometric model—this is because:[38]

  - there is insufficient knowledge of the provenance of the data (the data has been sourced from the internet, with no means of validating it or scrutinising the basis of preparation)
  - the motivation to introduce the international data was to facilitate the chosen parametric method (i.e. the Stochastic Frontier Analysis), rather than add any analytical value to the benchmarking models; and
  - the introduction of the data has limited the consideration of environmental variables, as no other data is available from New Zealand or Ontario.

- **Country dummy variables do not overcome latent heterogeneity.** Economic Insights recognises that there is some latent heterogeneity in the sample by including country dummy variables for New Zealand and Ontario in its preferred model. However, as noted by Frontier in its report for Networks NSW, simply including a dummy variable will not account for differences in the relationships between cost drivers and productivity, since the dummy variable simply shifts the intercept term, without affecting slope coefficients.[39] The mere inclusion of country dummy variables does not account for the fact that the relationships between input and output variables may be different in each country.

- **Selection of explanatory variables.** Only four environmental variables (peak demand, customer connections, the share of a network underground and circuit length) were included in the Economic Insights model, and any variation in opex not explained by variation in these variables was assumed to be due to inefficiency. A range of other potentially relevant variables were omitted from the Economic Insights model, in many cases due to the limitations of the international data. The Huegin report for Networks NSW and ActewAGL identifies a number of potentially relevant variables which were omitted, such as asset age, climate, regulated service standards and demographic factors.[40] To the extent that any of these omitted variables has an effect on expenditure requirements, this effect will be incorrectly attributed to management inefficiency in the Economic Insights model.

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37 Frontier Economics, *Review of AER's econometric models and their application in the draft determination for Networks NSW*, January 2015, pp. 23–25.

38 Huegin, *Efficiency and Growth for the 2016-20 regulatory period: Jemena Electricity Networks (Vic) Ltd Productivity Study*, April 2015, p. 17.

39 Frontier Economics, *Review of AER's econometric models and their application in the draft determination for Networks NSW*, January 2015, p. 43.

40 Huegin, *Response to draft determination on behalf of NNSW and ActewAGL: Technical response to the application of benchmarking by the AER*, January 2015, p. 42.

- **Differences in data reporting among Australian businesses**. The AER and Economic Insights do not appear to account for differences in the way RIN data is reported by Australian businesses. These differences should be apparent from a review of each business' 'basis of preparation' documentation, which was submitted with responses to the benchmarking RIN. In a report for Networks NSW, PwC finds differences in cost allocation methods and significant differences in accounting methodologies between businesses.[41] The AER does not appear to consider whether these differences in reporting between businesses may be affecting the results of its analysis.

71. JEN therefore considers that the econometric method developed by Economic Insights and relied on by the AER in the NSW draft decisions should not be used to draw inferences as to the relative efficiency of Australian businesses.

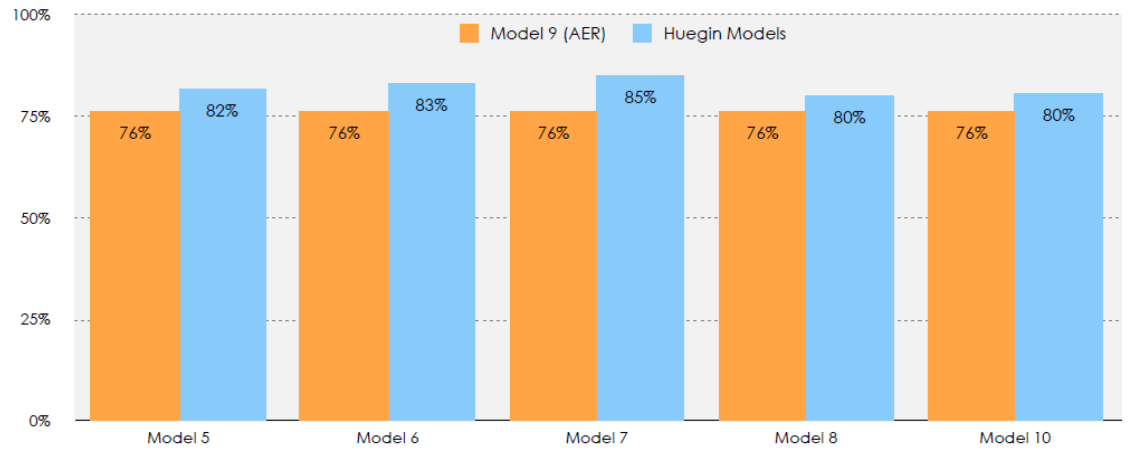
72. Huegin presents an alternative form of the AER econometric model in its expert report for JEN.[42] Huegin's model differs from the AER's in that:

- Huegin does not include international data, and
- Huegin tests five different model specifications, in addition to the AER's specification—these different model specifications use different combinations of environmental and output variables.

73. JEN considers that Huegin's alternative specifications are superior to the AER's. By excluding international data, Huegin overcomes the issue of pooling heterogeneous data, referred to above. The removal of international data also allows for a wider range of explanatory variables to be included.

74. The results of Huegin's alternative model specifications are presented in Figure 3–3 below, in each case compared to the results of the AER's model. In each of Huegin's model specifications, JEN has an efficiency score (relative to the frontier business) of between 80% and 85%.

Figure 3–3: Results of Huegin econometric analysis



Source: Huegin (Attachment 8-5), Figure 13.

75. The fact that JEN's efficiency score in each of Huegin's models is significantly higher than in the AER model suggests that the inclusion of international data in the AER's model (and the limitations this imposes on the choice of explanatory variables) is affecting the results. It suggests that the impact of the international data on

41 PricewaterhouseCoopers, *Independent Expert Advice on appropriateness of RIN data for benchmarking comparisons*, January 2015.

42 Huegin, *Efficiency and Growth for the 2016-20 regulatory period: Jemena Electricity Networks (Vic) Ltd Productivity Study*, April 2015, section 3.

modelled relationships and/or the omission of key explanatory variables from the AER's model may be biasing results.

76. While Huegin's results indicate that there is still a small gap between JEN and the 'frontier' business in terms of opex productivity, this gap is likely be due to differences between the businesses in terms of asset lifecycles, capitalisation policies and how we approach opex / capex trade-offs.

3.4.3 CONCLUSION ON RELEVANT MEASURES

77. The relevant benchmarking measures indicate:

- **Aggregate productivity measures.** JEN's historical total expenditure is around or above the threshold for the top quartile efficient frontier for the majority of MTFP models considered by the AER. Therefore, within the limitations of MTFP modelling, JEN cannot be considered to be an inefficient total expenditure performer.
- **Partial productivity measures.** JEN's opex PFP results are lower than its capex PFP and MTFP results for most model specifications. However, consideration of both opex and capex PFP suggests that JEN's opex PFP performance is not symptomatic of managerial inefficiency. Rather, it is likely to be due to different capital intensity between networks, environmental factors not picked up in the PFP measures, and/or other limitations of the PFP measures.
- **Opex econometric modelling.** Results of the econometric modelling suggest that JEN is at or above the threshold for top quartile efficiency across the industry.

78. Following a review of the relevant benchmarking measures, Huegin concludes:[43]

> *JEN is in the group of businesses that are most productive based on most MTFP models. Its opex PFP performance is moderately lower, but this is clearly influenced by a mix of inputs skewed more toward operating expense versus physical assets than many of its peers. This is reflected in JEN's superior capital PFP performance using the same model specifications as those used to determine opex PFP. Econometric modelling of JEN's historical opex is more consistent with the MTFP results…*
>
> *Importantly, based on the evidence available from the models and analysis, and acknowledging the limitations of productivity score comparisons, JEN cannot be considered to be inefficient.*

3.4.4 IMPLICATIONS FOR JEN'S OPEX FORECASTING

79. JEN has carefully reviewed the AER's annual benchmarking reports, and the Economic Insights and Huegin benchmarking measures referred to above.

80. Based on its review, JEN considers that there is no evidence to suggest any inefficiency in JEN's base year opex.[44] While JEN's performance on opex PFP measures appears weaker than its performance on MTFP and capex PFP measures, we consider that this is due to our different approach to opex/capex trade-offs—with generally more emphasis given to opex, relative to other businesses—and potentially different capitalisation policies.

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43 Huegin, *Efficiency and Growth for the 2016-20 regulatory period: Jemena Electricity Networks (Vic) Ltd Productivity Study*, April 2015, p. 41.

44 Huegin, *Efficiency and Growth for the 2016-20 regulatory period: Jemena Electricity Networks (Vic) Ltd Productivity Study*, April 2015, p. 41.

81. Huegin's analysis in fact indicates that JEN is in the group of businesses that are most productive based on most MTFP models and its econometric modelling. Including on the basis of these results, and notwithstanding the limitations of the benchmarking exercise undertaken by the AER and the dataset used in the benchmarking analysis.

82. JEN considers that the benchmarking material that is currently available to the AER indicates that JEN's historical opex provides a reasonable basis for forecasting opex over the 2016 EDPR period. JEN considers that forecast opex developed using historical opex will result in a forecast that reasonably reflects the efficient costs of achieving the opex objectives and the costs that a prudent operator would require to achieve those objectives.

3.5 INFORMATION FROM PREDICTIVE MODELLING

83. Predictive models—such as repex (see Attachment 7-11) and augex (see Attachment 7-12) models—can play a role in checking bottom up capex forecasts. These models can highlight the areas where unexpected variation from past trends has occurred, so that the causes of these variations can be examined in detail.

84. However, it is important to recognise the limitations of predictive modelling, including that:

- it assumes that past expenditure is a good predictor of future needs
- asset age is used as an imperfect proxy for asset condition in repex modelling, and
- it is unclear whether all the underlying RIN data is roust.

85. With these limitations in mind JEN has reviewed the outputs of the AER's repex and augex models and compared these results to its bottom up forecast of capex requirements for the 2016 EDPR period. This comparison shows that :

- for augex modelling:
  - JEN is forecasting total augex 9% below that forecast in the augex model—however at a component level variations of plus or minus 50% are common thereby, reducing confidence in the modelling outcomes.
  - the model is highly sensitive to model inputs with a 0.5% variance in demand forecasting resulting in a 22% change in augex—[45] over any five year period variances in demand of 0.5% are almost certain, making this model outputs unreliable to estimate augex programs.
- for repex modelling
  - the aggregate repex forecast by the model is 5% ($8m) less than the modelled component of JEN's own forecast—however, this result is near the top end of the range of expenditure that potentially could have some modelling inaccuracy.

[45] see Appendix A of Attachment 7-11.

4. CONCERNS WITH THE AER'S USE OF BENCHMARKING IN THE NSW DRAFT DECISIONS

4.1 AER USE OF BENCHMARKING FOR OPEX ASSESSMENT

86. In the NSW draft decisions, the AER:

- relied on benchmarking measures from its annual benchmarking report, as well as other measures not presented in that report
- based on these measures, concluded that a forecast based on the ACT/NSW service providers' historical opex would not reasonably reflect the opex criteria
- considered it necessary to make adjustments to the base year opex for each business—the apparent objective of the AER's adjustments was to bring each business' base year opex into line with a benchmark efficient level of opex, and
- used its preferred benchmarking model as the starting point to arrive at an alternative estimate of what it considered reasonably reflects an efficient base level of opex—the AER made adjustments to this starting point to provide an allowance for operating environment differences not captured by its model, and to compare the NSW DNSPs' efficiency to a weighted average of all networks with efficiency scores above 0.75 rather than the most efficient service provider in its model.

87. The AER considered the proposal put forward by some businesses to transition to the efficient frontier level of opex over time. The AER rejected this proposal, stating that consumers should not be required to share in funding the DNSPs' transition to an efficient level of opex.[46]

4.2 JEN'S CONCERNS WITH THE AER'S USE OF BENCHMARKING IN THE NSW DRAFT DECISION

88. There are two critical problems with the AER's use of benchmarking in the NSW draft decisions:

- **Excludes relevant evidence.** First, the NER does not allow for deterministic use of benchmarking to the exclusion of all other evidence, as appears to be the approach adopted in the NSW draft decisions—rather, benchmarking is one tool which can be used to assess an expenditure proposal, but it cannot substitute for the primary role of that proposal.
- **Not address all opex objectives.** Second, notwithstanding the above, benchmarking could only have a deterministic role if the AER is satisfied that the results of its benchmarking analysis will reflect the opex required by the NSW DNSPs to achieve the opex objectives. No benchmarking study could be capable of taking into account all of these factors. However, the benchmarking measures relied on by the AER in the NSW draft decisions are not capable of accounting for all relevant factors required to make this assessment. Therefore, the AER's use of the benchmarking model gives rise to a real risk that any substitute forecast based on benchmarking will not promote the NEO and potentially lead to outcomes which are inconsistent with the RPP.

89. These points are discussed below.

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[46] AER, *Draft decision: Ausgrid distribution determination 2014–19 – Attachment 7: Operating expenditure*, November 2014, [7-52].

4.2.1 NO BASIS IN THE RULES FOR DETERMINISTIC USE OF BENCHMARKING

90. The relevant legal and regulatory framework governing the manner in which the AER is to make a constituent decision about, relevantly, opex forecasts is set out in section 2.1 above.

91. Critically, the DNSP's forecast opex is the **starting point** for the AER's decision to determine its opex allowances. That much is clear from the terms of clause 6.5.6(c) of the NER which provides that the AER must accept the relevant DNSP's forecast opex if it is satisfied that the total of the forecast opex for the regulatory control period reasonably reflects each of the opex criteria in clause 6.5.6 of the NER.

92. In this regard, the NER establishes a 'propose-respond' model which practically means that the AER is required to consider the DNSP's proposal and must assess and determine whether it is satisfied that the forecast opex meets the opex criteria, having regard to the factors in clause 6.5.6(e) of the NER—with only one of the ten explicit factors reflecting a benchmarking focus. There is nothing in the NER which mandates that clause 6.5.6(e)(4) is to be given any particular primacy or greater weighting than any of the factors in the AER's consideration of whether or not it is satisfied that the proposal meets the opex criteria. To the extent the draft decision deviates from the regulatory proposal it is because the AER has satisfied itself that the forecast opex does not reasonably reflect the opex criteria.

93. It is clear then that the NER framework does not elevate benchmarking as being deterministic of whether or not the AER must accept the DNSP's opex forecasts or reject them. In fact, for reasons provided below, it would be inconsistent with the NER to do so. Rather, what is deterministic are each of the opex criteria—with none of the opex factors being identified as exclusively informing whether or not any one of the criteria is or is not satisfied. A reasonable regulator would balance the opex factors, as appropriate, to inform whether or not it can be satisfied of each of the opex criteria.

94. The methodology employed by the AER in determining opex allowances in the NSW draft decision does not conform to this framework, as set out in the NER. The AER's stated methodology involves using its own forecast, derived from its benchmarking reports, as the starting premise for determining whether the DNSP's forecast proposal reasonably reflects the opex criteria in clause 6.5.6(c) of the NER. Specifically, the AER provides that 'if the service provider's inputs and assumptions are reasonable, its method should produce a forecast consistent with our estimate'.[47] The AER has inverted the NER process—that is, the AER has adopted, as the starting premise, the assumption that its *own* forecast is correct.

95. This is clear from the NSW draft decision which provides that:[48]

> *If a service provider's total forecast opex is materially different to our estimate and there is no satisfactory explanation for this difference, we may form the view that the service provider's forecast does not reasonably reflect the opex criteria.*

96. The consequence is that the AER has placed an onus on the DNSP *after* the Draft Decision has been published and one which did not exist when the DNSP prepared its regulatory proposal—that onus being to provide a 'satisfactory explanation' as to the difference between its regulatory proposal and the AER's estimate—which can only be demonstrated by the DNSP in the limited time allowed for the making of the revised regulatory proposal.

97. The 'creation' of this onus arises because the NSW draft decision has misconstrued the standard upon which the AER is to scrutinise the DNSP's regulatory proposal. The AER's stated methodology of using its own forecast as the 'starting point' for total forecast opex means that the AER has erred because:

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47 AER, *Draft decision: Ausgrid distribution determination 2014–19 – Attachment 7: Operating expenditure*, November 2014, [7-12]

48 AER, *Draft decision: Ausgrid distribution determination 2014–19 – Attachment 7: Operating expenditure*, November 2014, [7-12]

- the AER has wrongly assumed that the other opex factors are subsumed within the benchmarking factor and therefore has not given proper and discrete regard to each of them, and
- the AER has wrongly assumed that the opex criteria can each be adequately considered by taking into account the same factors—that is, in this particular case, the AER has promoted its benchmarking results as being determinative of the opex criteria.

98. These errors are clear because in order to have adequate regard to each of the opex factors, and to be able to determine whether the opex criteria is satisfied, the AER necessarily must give consideration to the DNSP's particular costs and circumstances. This is evident from:

- the link in the opex criteria to the opex objectives which refers to matters which are clearly DNSP-specific—as noted above, for example, maintaining the reliability, safety and security of the *distribution system* (i.e. the particular system operated by that DNSP), and
- the repeated use of the phrase 'opex forecast' in the opex factors—which plainly refers to the DNSP's forecasts, not the AER's alternate forecasts.

99. Therefore, by making the benchmarking results determinative of the opex criteria—which do not take into account the endogenous circumstances of the DNSP—the AER has failed to properly discharge its regulatory function.

4.2.2 THE AER'S BENCHMARKING MODEL IS NOT CAPABLE OF DETERMINING THE OPEX REQUIRED BY EACH BUSINESS TO ACHIEVE THE OBJECTIVES

100. Conceptually—and putting aside the legal requirement to start with the DNSP's proposal—benchmarking could only have a deterministic role if the AER is satisfied that the results of its benchmarking analysis will reflect the opex required by the DNSP to achieve the opex objectives. This means that the AER's benchmarking model must be capable of taking into account all factors which may bear on each DNSP's ability to achieve the opex objectives, including those set out in the DNSP's proposal—for instance, service standards, network condition, climate, demographics etc.

101. JEN considers that no benchmarking study could be capable of considering all of these factors. Indeed, the AER recognises that the study it relies on in the NSW draft decision does not account for all these factors, and it is for this reason that it applies 'operating environment adjustments' to its benchmarking results.[49]

102. The AER cannot reasonably be satisfied that the arbitrary adjustments that it makes to its benchmarking results will correct for the failure of the benchmarking model to account for operating environment factors. The analysis underpinning the 'operating environment adjustments' in the NSW draft decisions is limited, and does not adequately account for the individual circumstances of each business.

103. As the benchmarking model does not account for all factors that are relevant to the amount of operating expenditure that has been incurred, or is forecast to be incurred, in respect of any particular network, the AER could not reasonably be satisfied that the opex forecasts for an individual business indicated by its benchmarking model will reflect the amount of expenditure required by that business to achieve the expenditure objectives. Therefore, even if the AER were entitled to effectively disregard the business' proposal, it would be unreasonable for the AER to adopt the forecast for that business indicated by its model. The AER would need to undertake further enquires as to the individual circumstances of the business, and the extent to which these circumstances are reflected in the forecast indicated by its model.

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[49] AER, *Draft decision: Ausgrid distribution determination 2014–19 – Attachment 7: Operating expenditure*, November 2014, [7-103]

104. In any case, JEN considers that the econometric model relied on by the AER in the NSW draft decisions is flawed and cannot be relied upon to determine a forecast of opex for each business that is consistent with the NER.

105. JEN has identified specific shortcomings of the AER's model in section 3.4.2 above.[50] These include:

- pooling of Australian and international data
- selection of explanatory variables, and
- failure to account for differences in data reporting among Australian businesses.

106. In light of the deficiencies in the econometric method developed by Economic Insights and relied on by the AER in the NSW draft decision, JEN considers that the benchmarking model cannot be used to draw inferences as to the relative efficiency of Australian electricity distribution businesses.

107. The use of the AER's benchmarking model in this way gives rise to a real risk that any substituted forecast based on the model will not promote the NEO, and will potentially lead to outcomes that are inconsistent with the RPP—specifically, that businesses may be deprived of a reasonable opportunity to recover the efficient costs incurred in supplying regulated services. In the event that businesses are unable to recover their efficient costs, this creates a risk of underinvestment and adverse consequences for consumers—including, reduced service levels and expenditure below efficient levels in the short term, potentially leading to a higher total cost of asset operation over the long term.

[50] On this issue, JEN is particularly concerned that the AER applied the outputs of its benchmarking model in a deterministic way in the NSW draft decisions, without any prior consultation on the form of that model or how it might be used. Had prior consultation been undertaken with DNSPs, some of the flaws in the model and its application might have been addressed.