Jemena Electricity Networks (Vic) Ltd

Advanced Metering Infrastructure

Response to the AER's draft decision on AMI transition application

Public

2 November 2016

An appropriate citation for this paper is:

Advanced Metering Infrastructure - Response to the AER's draft decision on AMI transition application

Contact Person

Matthew Serpell
Manager Asset Regulation & Strategy
Ph: 03 9173-7000
matthew.serpell@jemena.com.au

Jemena Electricity Networks (Vic) Ltd

ABN 82 064 651 083
Level 16, 567 Collins Street
Melbourne VIC 3000

Postal Address

PO Box 16182
Melbourne VIC 3000
Ph: (03) 9713 7000
Fax: (03) 9173 7516

TABLE OF CONTENTS

List of tables

List of figures

List of appendices

GLOSSARY

distributor	A distribution company (as defined in the AMIOIC).
draft decision	The AER's draft decision made under the AMIOIC in response to JEN's initial application (released 20 September 2016)
end date	31 December 2015 (as defined in the AMIOIC)
expenditure excess	The amount of actual expenditure in excess of the budget allowance in any given year of the initial regulatory period (as defined in clause 5I.5 of the AMIOIC)
initial application	The application made by JEN to transition from economic regulation under the AMIOIC to economic regulation under the NER (submitted 31 May 2016)
initial regulatory period	The period covering 2009 to the end date (as defined in the AMIOIC)
revised application, this application	This transition application made in response to the AER's draft decision (submitted 2 November 2016)
transition application model	The charges application model used in previous AMI charges reviews, modified for the transition to economic regulation under the NER
transition charge	The amount determined under clause 5L of the AMIOIC, representing the amount chargeable or refundable, as determined by the AER, to customers when transitioning from economic regulation under the AMIOIC to economic regulation under the NER
Tribunal	Australian Competition Tribunal

ABBREVIATIONS

ACS	Alternative Control Services
AER	Australian Energy Regulator
AMI	Advanced Metering Infrastructure
AMIOIC	AMI Order-in-Council
ABS	Australian Bureau of Statistics
BaU	Business-as-usual
BEE	Benchmark Efficient Entity
CPI	Consumer Price Index
DELWP	Department of Environment, Land, Water and Planning
ESCV	Essential Services Commission of Victoria
EDPR	Electricity Distribution Price Review
JEN	Jemena Electricity Networks (Vic) Ltd
MAB	Metering Asset Base
MDC	Meter Data Collection
MRO	Mass roll-out
NER	National Electricity Rules
RIN	Regulatory information notice
SCS	Standard Control Services
ToU	Time of Use
UE, UED	United Energy
WACC	Weighted Average Cost of Capital

OVERVIEW

Background

1. The Australian Energy Regulator (**AER**) is responsible for making determinations under the AMI Order-in-Council (**AMIOIC**) — a regulatory instrument that determines the costs that Jemena Electricity Networks (Vic) Ltd (**JEN**) can recover for Advanced Metering Infrastructure (**AMI**) expenditure and how that recovery should occur. The process for cost recovery involves establishing an ex-ante budget and the AER later undertaking an ex-post review of AMI-related operating and capital expenditure. Under the AMIOIC, JEN can apply to the AER to recover its efficient operating and capital expenditure for the roll-out of AMI services over the 2009-15 period (**initial regulatory period**).

2. The ex-post reviews of operating and capital expenditure that occurred between 2009 and 2013 were conducted on an annual basis and are now complete. The ex-post review of AMI-related operating and capital expenditure over 2014 and 2015 is undertaken by the AER as a single review as a part of the transition from economic regulation under the AMIOIC to economic regulation under the National Electricity Rules (**NER**).

3. The expenditure JEN incurred on AMI activities in 2014 and 2015 exceeded the ex-ante budget allowance. JEN can recover its expenditure excess, if approved by the AER, to the extent that the operating and capital expenditure in excess of the budget allowance is determined to be efficient.

JEN's transition application

4. On 31 May 2016, JEN submitted its initial AMI transition charges application (**initial application**) to the AER in accordance with Clause 5L of the AMIOIC. In the initial application, JEN sought a transition charge of $0.81M to be refunded to customers. The initial application also described how JEN calculated the transition charge and why the expenditure incurred in providing AMI-related services over the initial regulatory period is efficient.

5. On 20 September 2016, the AER released its transition application draft decision (**draft decision**) in response to the initial applications made by the Victorian distributors, including JEN. The draft decision identified that JEN's transition charge should be $14.03M ($2015[1]) to be refunded to customers—inclusive of an adjustment for the time value of money when trueing up the Metering Asset Base (**MAB**)—and sets out the approach the AER took to undertake the review. The draft decision is supported by benchmarking analysis undertaken for the AER by consultancy Energeia.

6. This document is JEN's revised application (**revised application, this application**) in response to the AER's draft decision. It is provided on the basis that JEN has considered the draft decision and now makes a submission in response which proposes a revised position relative to its initial application.

7. In this application, we propose a transition charge of $6.512M ($2015)—inclusive of an adjustment for the time value of money when trueing up the metering asset base (**MAB**)—to be passed back to customers through the price control formula for the type 5, 6 and smart metering charge.

JEN's objections to the draft decision

8. JEN accepts some aspects of the draft decision. However in reaching its view on the correct transition charge to be applied (as proposed in this document), JEN has identified a number of errors in the AER's draft decision where it fails to comply with the AMIOIC. These errors, and JEN's application in response, are as follows:

[1] The transition charge presented in the AER's draft decision is $16.5M expressed in $2018.

In relation to top-down benchmarking

- The AER has adopted an incorrect top-down benchmarking approach. The AER has benchmarked JEN against United Energy (**UE**) (as a 'benchmark efficient entity' or **BEE**) for all expenditure on the basis that UE delivered the AMI program over the initial regulatory period at lowest cost[2] (except for IT expenditure, where JEN is considered to be the BEE[3] and meter data collection (**MDC**) volumes where Powercor is considered the BEE[4]). The AER's analysis errs in that:
  - no adjustment has been made to account for the fact that UE operates on a different scale to JEN and will, without necessary adjustments to take account of the proportion of operating costs that are fixed, not be a suitable BEE for JEN. That is, the AER's approach is too simplistic and overstates the efficiency of a larger network (such as UE) relative to a smaller network (such as JEN). The AER relies solely on the data reported within the AMI charges model for its analysis, but this has insufficient disaggregation of expenditure to facilitate meaningful analysis of what could be considered fixed and variable costs. Overall, the analysis and restricted dataset results in materially incorrect estimates of the relative efficiency of JEN and UE,
  - we consider the selection of a BEE solely on the basis of lowest cost is inappropriate – JEN considers that other relevant factors should be taken into account, including status of compliance with applicable laws and rules. Relevantly, UE had not met the target 90% roll-out commitment by the end of 2013 as expected by the Essential Service Commission of Victoria (**ESCV**) in its review of the best-endeavours obligation. Had this obligation been achieved then the efficient costs of UE (and therefore the AER's BEE) are likely to have been higher than those reported, *and*
  - selecting the best performance from different categories of expenditure from different distributors in the construction of a BEE creates a distorted and unattainable level of expenditure efficiency; this is because performance and cost are traded-off. As a result, any business that is compared to this construct of a BEE—such as JEN—is automatically penalised.
- To correct for this error, JEN's proposed approach in this application – supported by the Huegin's analysis at Attachment 4 – is to have regard to the fixed costs of JEN and the BEE when undertaking cost per meter benchmarking over the 2009-15 period. To enable the adjustments to be made, JEN proposes that the data used by the AER be supplemented with metering data available in each business – namely the audited category analysis RIN data.
- Support for JEN's proposed approach can be found in clause 5I.8B of the AMIOIC, which provides that regard should be had to matters that affect scale in any benchmarking analysis. Clause 5I.8B expressly lists two factors that the AER may have regard to when determining the BEE for a distributor. These are meter density and the number of meters subject to regulation. The express inclusion of these two items in the AMIOIC – which otherwise gives the AER a degree of discretion in relation to the benchmarking method – strongly suggests that matters of scale would be a critical factor in the choice of BEE for determinations under clause 5L of the AMIOIC.

9. In section 2 of this application, we address these issues in more detail and put forward a benchmarking analysis that complies with the AMIOIC and corrects for the errors in the AER's approach, in particular we address the fixed and variable nature of expenditure and its impacts on assessing efficiency.

---

2 Energeia, *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications Prepared for the Australian Energy Regulator*, September 2016, Pg. 24.

3 Energeia, *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications Prepared for the Australian Energy Regulator*, September 2016, Pg. 4.

4 Energeia, *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications Prepared for the Australian Energy Regulator*, September 2016, Pg. 30.

In relation to bottom up benchmarking:

- In its bottom up benchmarking relating to JEN's meter installation unit rates, the AER failed to take into account the stage of JEN's roll-out program in 2014 and 2015. JEN used best endeavours to complete the roll-out by the end of 2013, in accordance with its legal obligations. Ultimately, although most of its roll-out was completed by end 2013, JEN was left with having to roll-out more than 8% of its overall stock in 2014.[5] By being close to completion at the end of 2013, JEN had lower meter density and lower scale meters to roll-out in 2014, which in turn impacted its meter installation unit rates.
- Without adjusting for the stage of the roll-out, the AER has used incorrect benchmarking analysis for assessing the efficiency of JEN's costs. Effectively, JEN is being penalised for having completed more of its roll-out by the end of 2013 relative to other distributors, and in the choice of UE as the BEE. In addition, it is open to the AER to have regard to matters in clauses 5I.8(b), (c) and (d) of the AMIOIC when assessing the efficiency of JEN's excess expenditure. This would be appropriate here and enable the AER to take into account JEN's legal obligations (and the degree of JEN's compliance with those relative to the BEE) and the nature of, and risks inherent in, the project when assessing JEN's efficient costs.
- To address the deficiencies in the AER's approach, JEN proposes an alternative bottom-up method for constructing a BEE for meter installation unit rates.
- The same criticism of the AER's decision applies in relation to the mass roll-out back-office expenditure – that is, the AER has used an incorrect benchmarking analysis for JEN which fails to take account of the stage of JEN's MRO program in 2014 and 2015 (refer to section 3.3.1). To correct this deficiency, JEN proposes using information from the 2016-20 Electricity Distribution Price Control (**EDPR**) review—in which the AER assessed and provided allowances for metering activities under business-as-usual (**BaU**) conditions having completed the MRO in the initial regulatory period—for establishing a BEE's back-office costs.
- The AER's approach for adjusting some categories of capital expenditure erroneously substitute ex-ante 2012-15 budget allowances even though the AER's ex-post review determined that JEN's excess capital expenditure was efficient (refer to section 3.2). It cannot be intended under the AMIOIC that the ex-ante budget figures are the correct inputs into benchmarking. The intent of benchmarking under the AMIOIC is to re-evaluate efficiency and costs in light of changed circumstances. JEN has been subjected to a number of changes of circumstances since the 2012-15 budget decision was finalised and its efficient costs would necessarily be something other than the ex-ante budget. To overcome this error in the AER's approach, JEN proposes that the AER uses JEN's actual efficient expenditures in its analysis.
- The AER's approach to assessing MDC expenditure—a cost that is recoverable under clause 5I.2(a)(ii) of the AMIOIC—is erroneous, in that it assumes all manual meter reads are performed quarterly, and it applies a benchmark business in assessing the meter read volumes for assessing expenditure (refer to section 3.4). To correct the deficiency in the AER's approach, JEN proposes to take the unit rate adopted from Energeia's model for calculating manual meter read charges and multiply it by the number of actual reads conducted over 2014 and for the portion of 2015 over which the AMIOIC permits manual MDC charges can be collected.

[5] Compared to 16.6% for UE in 2014 and 20.3% for AusNet Services, see Oakley Greenwood report (Attachment 4).

- When adjusting operating expenditure, the AER took the adjustments to the 'high value, high risk' categories of expenditure as assessed by Energeia (namely MDC), and applied them to all operating expenditure budget amounts. This is inconsistent with the intent in the way Energeia calculated the adjustment and with the way 2013 expenditure excesses were treated. The correct approach to implementing adjustments, as proposed by JEN in this application, is to deduct the category of expenditure proposed (for each category being reviewed) from the transition application model and then add back the adjustment amount (refer to section 3.4).[6] If this approach is intentional then the AER has made an adjustment to JEN's actual operating expenditure without any review as to whether operating expenditure is efficient.

10. In section 3 of this document, we address each of these issues in more detail and put forward a benchmarking analysis that complies with the AMIOIC and corrects for the errors in the AER's approach.

Applying various benchmarking techniques to JEN expenditure excess

11. In its approach to benchmarking, the AER has used a top-down approach to assessing JEN's overall efficiency but used an unrelated bottom-up benchmarking technique as the basis to make adjustments to the transition application model. We consider switching techniques to be in conflict with the requirements of clause 5I.8A which refers to a singular BEE.

12. In section 4 of this application we overcome the AER's deficiency using a combination of both a top-down and bottom-up benchmarking techniques to construct a BEE; this is a more robust approach to assessing efficiency of expenditure under the AMIOIC.

Truing up the asset base and passing through the transition charge

13. Once a transition charge is calculated it then becomes necessary to pass this amount to customers, including adjustments for the time value of money. JEN accepts the approach adopted in the draft decision which outlines two adjustments for trueing up the MAB:

- the true-up of the difference between actual and estimated MAB value at the end of 2015; *and*
- the true-up for the time value of money for the period between 31 Dec 2015 (**end date**) and the years in which the transition charge is refunded to customers.

14. In the draft decision the AER proposes that the full transition charge is passed back to customers in 2018. In this application JEN proposes smooth the effect of the transition over 2018-20 as permissible under clause 5L.3 of the AMIOIC.[7] Allocating the full transition charge to one year only will cause volatility in prices because the transition charges will cause an unsmoothed spike (positive or negative) in the 2018 *type 5, 6 and smart metering* charges and then another spike (this time in the opposite direction) in 2019 as the effects of the transition charge are removed from the revenue cap. JEN believes customers' interestest are best served by smoothing the effect of the pricing adjustment over the remainder of the 2016-20 regulatory control period.

Submissions - on JEN's initial application

15. In the consultation process prior to making a draft decision, the AER sought public submissions from stakeholders interested in the review of the Victorian distributor's initial applications. The AER received one submission from the Department of Environment, Land, Water & Planning (**DELWP**), in that submission the DELWP raised a number of concerns in relation to the applications including the initial application lodged by

---

6 *Note*: the approach proposed in this application is the approach followed by the AER in its review of the 2013 expenditure excess.

7 Allocating the full transition charges to one year only will cause volatility in charges because the transition charges amount will cause an unsmoothed spike (positive or negative) in the 2018 type 5, 6 and smart metering charges and then another spike (this time in the opposite direction) in 2019 as the effects of the transition charge is removed from the revenue cap

JEN. In this application we respond to each matter from DELWP's submission that relates to JEN in Appendix C.

Structure of this document

16. This application is structured as follows:

- Section 1 outlines the benchmarking framework prescribed under the AMIOIC and how it should be applied in the review of JEN's expenditure excess
- Section 2 outlines the shortcomings of the AER's top-down approach to developing a benchmark and outlines an alternative approach that complies with the AMIOIC and applies to JEN
- Section 3 describes the shortcomings of the AER's bottom-up approach to developing a benchmark and outlines an alternative approach that complies with the AMIOIC and applies to JEN
- Section 4 describes a series of model adjustments integrating the outcomes of the top-down and bottom-up modelling and applies them to determine inputs into the transition application model, *and*
- Section 5 outlines JEN's approach to truing-up MAB and efficient expenditure.

17. A number of supporting attachments are also included in this application. These comprise:

- Attachment 1 – Transition application model (Excel)
- Attachment 2 – Top-down and bottom-up model data (Excel)
- Attachment 3 – Top-down statistical analysis model data (Excel)
- Attachment 4 – AMI transition charges review prepared for: Jemena Electricity Networks[8]
- Attachment 5 – Benchmarking Jemena's Advanced Metering Infrastructure expenditure, Analysis of AMI expenditure between 2009 and 2015[9]
- Attachment 6 – Data supporting the modelling at Attachment 5 (Excel)
- Attachment 7 – Materials to support the exogenous factors outlined in Appendix D.

18. We also include information in appendices to support the positions made in this application.

Confidentiality

19. JEN does not claim confidentiality over any of this application, the contents in the appendices, the attachments and models. This increases the transparency of this application and is consistent with the best practice modelling principles as outlined in section 1.3.

---

8 Oakley Greenwood, *AMI transition charges review, prepared for: Jemena Electricity Networks*, 18 October, 2016.

9 Huegin, *Benchmarking Jemena's Advanced Metering Infrastructure expenditure, Analysis of AMI expenditure between 2009-2015*, 3 October, 2016.

1. BENCHMARKING FRAMEWORK

Key Messages

- The AMIOIC outlines the requirements for establishing a BEE.
- Obtaining the best data to construct a BEE is imperative; it will form a robust basis from which effective benchmarking can be undertaken.
- JEN leverages best practice techniques to build upon the benchmarking techniques developed by Energeia to produce models of higher statistical significance.

1.1 ORDER IN COUNCIL REQUIREMENTS

20. Clause 5L of the AMIOIC sets out the process by which a distributor can make an application for a transition charge. That clause provides, in effect, that the transition amount will recover the difference between costs and revenues.[10] For the years commencing 1 January 2014 and 1 January 2015, the costs are the building block costs for the relevant year – which must include actual capital expenditure and actual maintenance and operating expenditure – and revenues are the actual revenue figures for the relevant year.[11]

21. The AMIOIC requires that building block costs be determined in accordance with the matters set out in clauses 5I.2 to 5I.10. Clause 5I.2 requires that in determining the building blocks, the AER must include actual capital expenditure and actual maintenance and operating expenditure where that expenditure is within *scope* at the time of committing to that expenditure.[12] Clause 5I.5 provides that the AER may include in the building blocks any expenditure that exceeds the budget allowance (‘*expenditure excess*’) for a given year, in accordance with clauses 5I.6 to 5I.9.

22. Clauses 5I.6 to 5I.9 outline a framework to assess the *prudency* and *efficiency* of excess expenditure to guide the AER on whether to allow excess expenditure in the building block costs. Noteworthy is clause 5I.7AA which provides that the prudency and efficiency of excess expenditure is to be assessed by looking at the entirety of the *initial regulatory period*, ie. the period covering 2009–15.

23. The framework includes a number of matters that the AER *may* take into account when assessing the efficiency of excess expenditure (including competitive tender processes[13] and the nature of the services being provided, the risks inherent in an AMI project, legal obligations and market conditions[14]), as well as one matter that the AER *must* take into account – the expenditure of a BEE over the entirety of, or any part of, the initial regulatory period.[15]

24. BEE is not defined in the AMIOIC, but clause 5I.8B(a) sets out two matters the AER may have regard to when determining the BEE for a particular applicant — *meter density* and the *number of meters subject to regulation*.

10 Clause 5L.4.

11 Clause 5L.4.

12 Clause 5I.2(a)(ii).

13 Clause 5I.7B.

14 Clause 5I.8.

15 Clause 5I.8A.

Logically, these matters will drive the costs of any roll-out activity and presumably this is why they have specifically been called out for consideration in the AMIOIC.

1.2 DATA SOURCE TO CONSTRUCT A BEE

25. To construct a BEE it is necessary to obtain data; the source and quality of that data is important to ensure the robustness of the modelling outcomes. In its report, Energeia advocated relying on transition application data as the *primary source*, given this is the data set on which all charges are assessed[16]—JEN accepts this approach. To construct a BEE, however, it is not sufficient to rely wholly on transition application data as the data is highly aggregated and does not provide insights into a range of potentially statistically significant cost drivers. To overcome this deficiency it is necessary to identify alternative sources of data; the obvious location is the Regulatory Information Notice (**RIN**) data. This point is also acknowledged by Energeia stating "*RIN data does have some advantages over charges data …. potentially enabling aggregated category or more fine-grained benchmarking.*"[17]

26. Energeia themselves revert to RIN data when assessing whether other cost drivers should play a part in the construction of a BEE, and whilst Energeia concluded that RIN data does not play a part in the construction of a BEE, they do consider that augmenting the charges application data with RIN data is appropriate if the testing of drivers passes a statistical significance test (we use this 'permissibility' framework below for the testing of other cost drivers identified by JEN).

27. Similarly, the AER has also relied on RIN data in making its draft decision; data was drawn from JEN's Annual RIN response for assessing tariff revenue.[18] This step was necessary to overcome the data deficiency and determine the transition charges amount because there is no other source of data that would give a better regulatory decision. (Note: there is no requirement in the AMIOIC to report revenues recovered from the prescribed metering charges, hence the need to obtain the data from another reliable source).

28. Energeia has criticised JEN's used of RIN data for assessing benchmark performance noting that "*on balance, the RIN data has more deficiencies than the transition application data*."[19] The context of this statement is that the RIN data cannot be used as the *primary source* and that charges application data should be the starting point for constructing a BEE. In this application JEN accepts this contextual statement and has amended its modelling to use the transition application data as the starting point on which to construct a BEE.

29. In its observations on the same topic Huegin finds that "reliance solely on [transition application data] would likely result in materially incorrect estimates of relative efficiency [between JEN and the BEE] as there is insufficient disaggregation of expenditure to facilitate meaningful analysis of what could be considered fixed and variable costs."[20] Accordingly, JEN submits that RIN data should also be adopted for the construction of a BEE where its use–in conjunction with of transition application data—contributes towards greater statistical significance; following this approach will increase the accuracy and reliability of the benchmark modelling.

---

16 Energeia, *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications Prepared for the Australian Energy Regulator*, September 2016, Pg. 17.

17 Energeia, *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications Prepared for the Australian Energy Regulator*, September 2016, Pg. 17.

18 AER, *Advanced Metering Infrastructure, Transition Charges Application*, September 2016, Pg. 43.

19 Energeia, *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications Prepared for the Australian Energy Regulator*, September 2016, Pg. 16.

20 Huegin, *Benchmarking Jemena's Advanced Metering Infrastructure expenditure, Analysis of AMI expenditure between 2009-2015,* 5 October, 2016, Pg. 2.

1.3 BEST PRACTICE MODELLING

30. The AER has outlined a range of modelling principles in its Expenditure Forecast Assessment Guideline that "provide some reassurance to NSPs and stakeholders of the rigour".[21] The key principles are:

- Valid
- Accuracy and reliability
- Robustness
- Transparency
- Parsimony
- Fitness for purpose

31. The AMIOIC acknowledges the relevance of these best practice modelling principles when outlining the approach to benchmarking by referring to the AER's Expenditure Forecast Assessment Guideline (see clause 5I.8B(b)).

32. Using these principles—amongst other sources of good modelling practices —JEN proposes to commence with Energeia's modelling approach but make to make improvements where statistical significance is improved or compliance with the AMIOIC requirements is necessary.

[21] AER, *Better Regulation, Expenditure Forecast Assessment Guideline for Electricity Distribution*, November 2013, Pg. 15.

2. BENCHMARKING – TOP DOWN ANALYSIS

Key Messages

- The AER has adopted an incorrect approach to top-down benchmarking by failing to consider to the impact of scale when assessing JEN's expenditure efficiency relative to the BEE.
- JEN proposes to overcome this deficiency by developing an approach to benchmarking that takes into account the fixed and variable nature of expenditure required under the AMIOIC.
- JEN's top-down benchmark analysis yields only modest expenditure in excess of the BEE as outlined below:
  - Operating expenditure excess is $0.7M ($2014) and $0.2M ($2015),
  - Variable capital expenditure[22] excess is $0.02M ($2014)
- JEN demonstrates it is efficient relative to the BEE for all other expenditure categories over 2014 and 2015.

33. As noted in section 1.1 there may be times when the AER will assess a distributor's expenditure excess to determine whether it is efficient and therefore whether it can be recovered through the transition charges. To assess the expenditure efficiency the AER is required to undertake benchmark analysis (per clause 5I.8A); as a part of this process the AER must construct a BEE (clause 5I.8B) for the purposes of comparing actual expenditure against that of an efficient entity.

2.1 ENERGEIA'S APPROACH TO DEVELOPING A BEE

34. In its assessment of efficiency Energeia stated, "[f]or UED and JEN, UED was the benchmark efficient entity for each capital expenditure and operating expenditure category, except for IT, where Jemena set the efficient benchmark".[23] Energeia's primary technique for developing a BEE was to identifying the lowest capital and total cost incurred by Victorian distributors over the initial period. The assessment is reported in Table 2–1 below:

Table 2–1: Average cost per customer (2009-15) ($, nominal)

Victorian distributor	Total expenditure(1)	Capital expenditure(2)
United Energy	911.89	643.91
Powercor	1,021.32	787.27
CitiPower	975.92	703.63
SP Ausnet	1,482.47	1,021.24
Jemena	1,245.18	827.35

(1) Source: Energeia, *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications Prepared for the Australian Energy Regulator*, September 2016, Figure 6.

(2) Source: Energeia, *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications Prepared for the Australian Energy Regulator*, September 2016, Figure 4.

22 Equivalent to the net of *meter purchase* and *meter installation* expenditure in sections 3.3.1 and 3.3.2.

23 Energeia, *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications Prepared for the Australian Energy Regulator*, September 2016, Pg. 3.

35. In constructing a BEE, Energeia considered a range of environmental factors, including those suggested by the AMIOIC. These include:

- Average meters
- Meters per customer
- % business customers
- Meter density

36. In its assessment, Energeia concluded that only meter numbers should be considered when constructing a BEE,[24] this conclusion is drawn from t-test statistical analysis as reproduced in Table 2–2 where positive scores of 2 or above are considered strong drivers of expenditure.

Table 2–2: Statistical significance test results (t-values)

Explanatory Variable	Total expenditure	Capital expenditure	Operating expenditure
Meters	2.83	3.45	1.69
meters/customer	(0.34)	(0.46)	(0.05)
% Business Customers	(0.47)	(0.35)	(0.77)
Density	(2.57)	(2.98)	(1.66)

Source: JEN Analysis

37. JEN finds that the more fundamental fixed / variable expenditure has not been considered as a part of Energeia's construction of a BEE. We address why and how this factor should be examined in the development of a BEE in section 2.3.[25]

Applying the benchmark

38. Having established that JEN had spent above its budget allowance over the 2009-15 initial regulatory period, Energeia then sought to assess the efficiency of JEN's expenditure excess at a category level to determine an efficient level of expenditure that JEN ought to have incurred for the 2014 and 2015 years (and therefore the extent to which JEN can recover its expenditure excess through transition charges).

2.2 ENERGEIA'S REVIEW OF JEN'S APPROACH

39. Energeia examined the approach JEN adopted in its initial application for demonstrating benchmark efficiency and raised three key concerns, namely: (i) reliance on RIN data, (ii) reliance on the assumption that IT and communications operating expenditure is a fixed cost, and (iii) reallocation of costs. Whilst JEN maintains that the methods employed in our initial application demonstrate cost efficiency—albeit using a range of different techniques than those adopted by Energeia—we have sought to address the concerns identified by Energeia and present an alternative method in this application to also demonstrate efficiency. In relation to the concerns raised we note:

- **Reliance on RIN data** – JEN has amended its benchmarking model in this application to source base data from the Victorian AMI transition applications and only rely on RIN data where it is necessary to determine a better benchmark method as noted in section 2.2.

[24] Energeia, *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications Prepared for the Australian Energy Regulator*, September 2016, Pg. 22.

[25] JEN also considers that meter density plays a part in the development of bottom-up benchmarking (see section 3.3.1.1).

- **Reliance on the assumption that IT and communications operating expenditure is a fixed cost** – Energeia asserted in its report that JEN did not demonstrate that IT and communications operating expenditure was fixed in nature.[26] To clarify this point Huegin (at Attachment 5) elaborates on the reasons why this category of expenditure is fixed in nature.[27]

- **Reallocation of costs** – Permissible under AMIOIC clause 5I.8B(c)(v)(A), some IT costs related to Distribution IT systems can be removed for undertaking benchmarking, it was recognised in the drafting of the AMIOIC that this substantial cost could distort the development of a benchmarking framework if not normalised. To illustrate the point, we note JEN and UE's implemented new billing systems which were recovered under the AMIOIC; however, Powercor and CitiPower did not adopt this same method instead deferring expenditure on billing systems to the 2016-20 EDPR process.[28] Despite having good reason for making adjustments to IT capital expenditure, JEN has relied on the transition application data for the construction of a BEE thus resolving Energeia's concern.

2.3 JEN'S REVISED APPLICATION APPROACH

40. In this application JEN largely adopts the benchmarking approach developed by Energeia but makes an amendment to address the fixed and variable nature of expenditure required under the AMIOIC. Nowhere in its analysis did Energeia consider or test the implications of this important condition, however, they do briefly acknowledge the inclusion of fixed costs analysis in JEN's initial application.[29]

2.3.1 HIGH PROPORTION OF COSTS ARE FIXED

41. As has been clearly identified in Huegin's report[30] and in the AER's 2016-20 EDPR decision for JEN,[31] some metering costs are fixed in nature; this observation is further supported by the DELWP in its submission[32] to the Victorian distributor's initial applications. DELWP not only observed this factor in the provision of AMI regulated metering services but also noted that AER should engage on this approach advocated by JEN in its initial application. Given the emphasis placed on this issue by the DELWP, and from the analysis demonstrating improved statistical significance presented in this application (see below), the AER must engage on this important dimension to properly assess expenditure efficiency.

Statistical analysis

42. In its assessment of JEN's initial application, Energeia stated it was concerned that JEN had a:

> *reliance on an assumption that IT and communications opex is a fixed cost and cannot be shared which is demonstrably false given Jemena and UED undertook such an arrangement*[33]

---

26 Energeia, *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications Prepared for the Australian Energy Regulator*, September 2016, Pg. 20.

27 Huegin, *Benchmarking Jemena's Advanced Metering Infrastructure expenditure, Analysis of AMI expenditure between 2009-2015,* 5 October, 2016, pp 3-6.

28 Powercor, *2016–2020 Price Reset, Appendix F, Base year adjustments*, April 2015, Pg. 12.

29 Energeia, *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications Prepared for the Australian Energy Regulator*, September 2016, Pg. 20.

30 Huegin, *Benchmarking Jemena's Advanced Metering Infrastructure expenditure, Analysis of AMI expenditure between 2009-2015,* 5 October, 2016, pp 3-9.

31 AER, *Attachment 16 - Alternative Control Services, Jemena Preliminary decision 2016-20, 26 October, 2016, Pg.* 16-37.

32 DELWP, *Advanced metering infrastructure transition charges applications 2017*, 30 August, 2016, Pg. 1.

33 Energeia, *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications Prepared for the Australian Energy Regulator*, September 2016, Pg. 20.

43. However, Energeia's statement on fixed costs is made with no analysis supporting such a claim. In the absence of a clear rationale, we address this concern through analysis presented by Huegin (at Attachment 5).

44. To assess which costs are fixed and which are variable, Huegin has undertaken a statistical analysis to allocate costs (both capital expenditure and operating expenditure) between fixed and variable categories. Using r-squared ($\mathbf{r^2}$) (regression analysis) diagnostics it can be observed that costs can be split into fixed and variable categories when compared to meter volumes. As noted in Huegin's report, the fixed / variable mix of costs contributed 36% to the BEE costs which, if not accounted for, would "result in materially incorrect estimates of relative efficiency as there is an insufficient disaggregation of expenditure to facilitate meaningful analysis of what could be considered fixed and variable costs".[34]

45. To address Energeia's concerns that IT and communications operating expenditure is mostly fixed, regression analysis (r^2 values) was undertaken. As outlined in Table 2–3 the percentages are very low for IT and communications operating expenditure thus confirming the fixed nature of expenditure.

Table 2–3: Allocation of fixed and variable costs

	Fixed (r^2)	Variable (r^2)
Capital expenditure	Information technology (1%)	Meters and installation (87%)
	Other capital expenditure (2%)	Communication (50%)
Operating expenditure	IT infrastructure (0.4%)	Other operating expenditure (19%)[35]
	Communication infrastructure (1%)	

Source: *Huegin, Benchmarking Jemena's Advanced Metering Infrastructure expenditure, Analysis of AMI expenditure between 2009-2015*, 5 October 2016, pp 5-6.

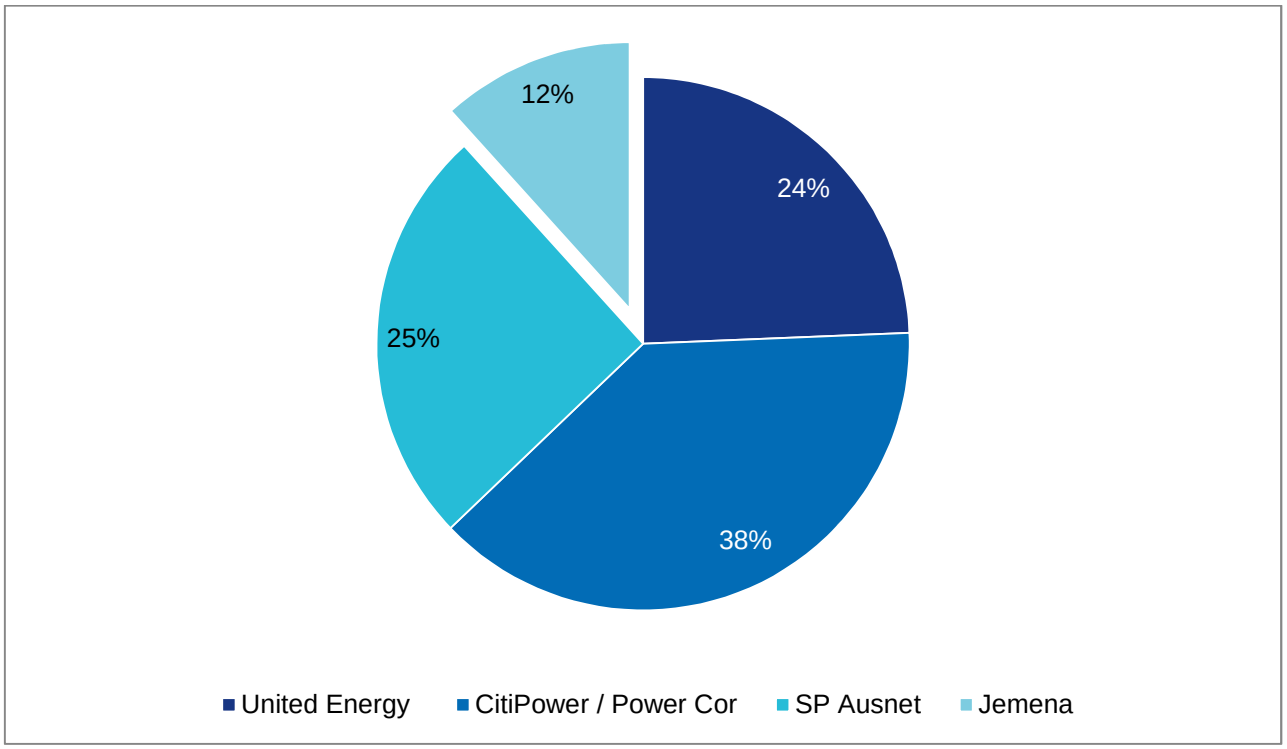
Market data

46. If the market share was evenly split across the Victorian distributor's then there would be little need to account for fixed costs when considering the efficiency of expenditure. However, this is not the case, in reality JEN is at a significant cost disadvantage relative to the other distributor's, having approximately half of the customer base of the average (see Figure 2–1) and has—on a per meter basis—almost double the proportion of fixed costs. This is a significant disadvantage when undertaking benchmarking and must be accounted for when conducting comparative analysis, particularly given all five licenced distributor's in Victoria are subject to the same obligations under the AMIOIC.

[34] Huegin, *Benchmarking Jemena's Advanced Metering Infrastructure expenditure, Analysis of AMI expenditure between 2009-2015,* 5 October, 2016, Pg. 2.

[35] Huegin (at attachment 5) notes that other operating expenditure "shows a weak, albeit stronger, positive relationship with meter installation", Pg. 6.

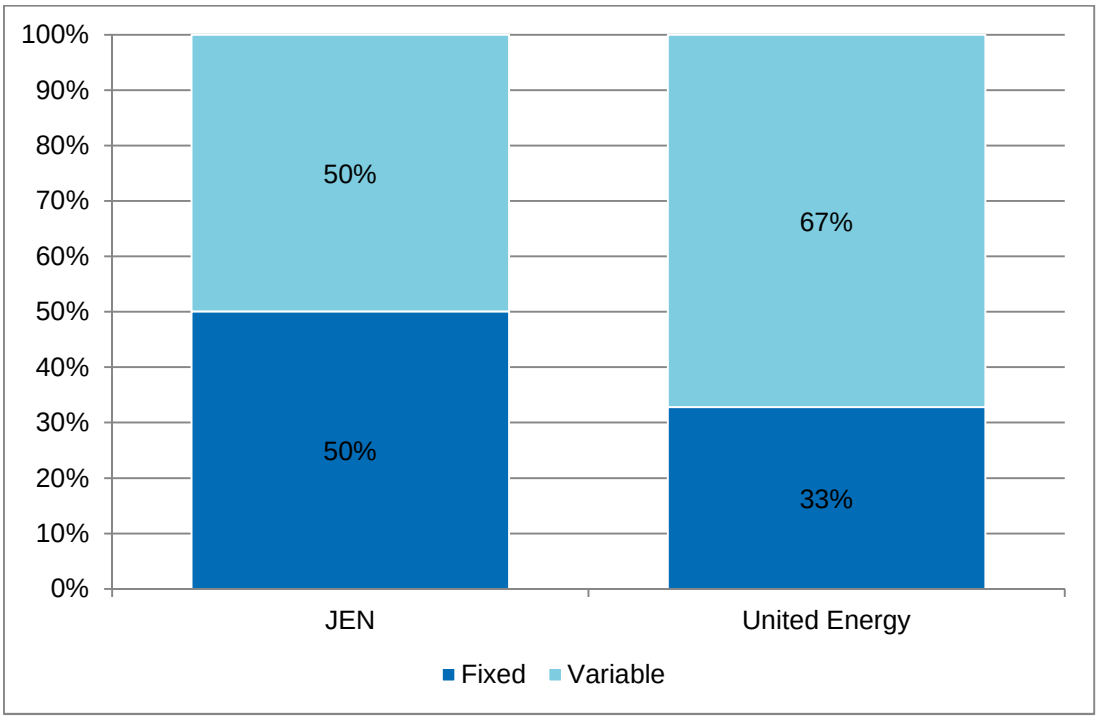
Figure 2–1: Market share of Installed Meters by distributor (2009-15)



Source: JEN Analysis

47. The disproportion of fixed and variable costs between JEN and the BEE is highlighted all the more in Figure 2–2 where it can be observed that JEN is at a disadvantage if fixed costs are not accounted for in the construction of a BEE.

Figure 2–2: Proportion of Fixed and Variable totex ($2018)

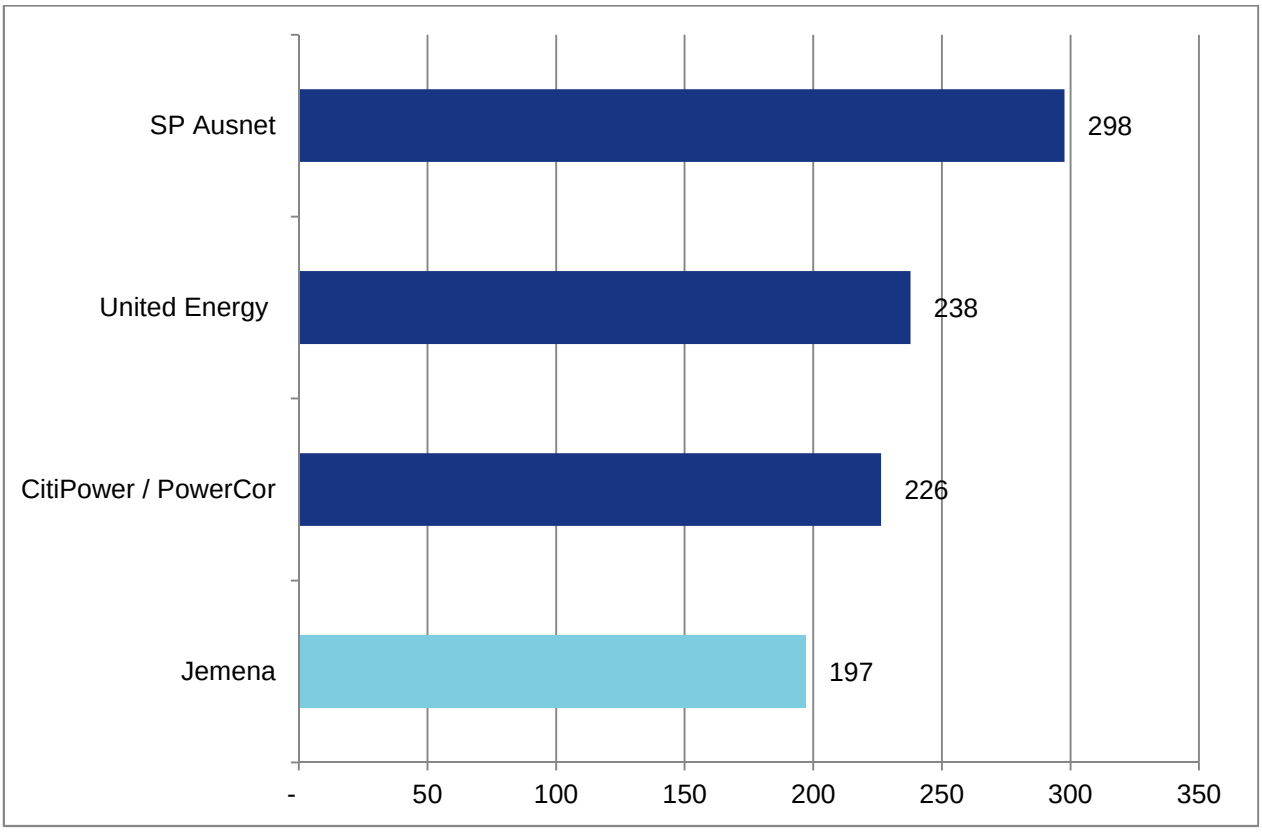


Source: JEN Analysis

48. It can also be observed in Figure 2–3 that there are a group of costs that are relatively constant and only change with the program design rather than the volume of meters installed, despite having common obligations under the AMIOIC to install AMI meters. (*Note*, costs for Powercor and CitiPower are combined in Figure 2–3 because of combined systems and processes, consistent with the approach adopted by Energeia in its assessment of cost efficiency[36]).

[36] Energeia, *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications Prepared for the Australian Energy Regulator*, September 2016, Pg. 5.

Figure 2–3: 2009-15 Fixed costs per distributor ($M, 2018)



Source: JEN Analysis

2.3.2 TEST RESULTS

49. In modelling, parsimony is the identification of clear explanatory drivers that explain expected outcomes. In the case of AMIOIC related expenditure, Energeia has identified meter numbers as being a parsimonious cost driver by using the t-test and sign indicator diagnostic tools.

50. Using the criteria outlined in section 2.2, JEN considers that if a valid driver has been identified using the t-test and data from sources other than the transition application (namely RIN data), then it is acceptable to incorporate data from that other source into the modelling.

51. Following this approach and overlaying the fixed and variable dimension to Energeia's model the t-test scores outlined in Table 2–4 are produced. These results, generally being higher than those utilised by Energeia in its development of a BEE (See Table 2–2), demonstrate that a more granular assessment of the fixed and variable costs drivers of a Victorian distributor providing regulated services should be taken into account when developing a BEE.

Table 2–4: t-test results incorporating fixed and variable cost drivers (t-test)

Explanatory Variable	Totex	Capital expenditure	Operating expenditure	Variable capital expenditure	Fixed capital expenditure
Average meters	2.83	3.45	1.69	3.18	1.23
Meters per customer	(0.34)	(0.46)	(0.05)	(0.90)	0.77

Explanatory Variable	Totex	Capital expenditure	Operating expenditure	Variable capital expenditure	Fixed capital expenditure
% Business Customers	(0.47)	(0.35)	(0.77)	0.04	(1.86)
Density[37]	(2.57)	(2.98)	(1.66)	(3.68)	(0.76)
Fixed Costs	1.84	1.66	2.03	N/A	N/A
Variable Costs	6.74	6.45	7.42	N/A	N/A

Source: JEN Analysis

2.3.3 PROPOSED APPROACH TO CONSTRUCTING A BEE

52. Based on the results above, JEN proposes to construct a BEE in this application retaining UE as the baseline but supplemented by RIN data where necessary to deliver a better-constructed BEE. To do this, it is necessary to map the cost categories in the transition application model to the categories BEE categories; to this end, the mapping matrix in Table 2–5 is produced.

Table 2–5: Cost category mapping

	Fixed		Variable	
	BEE assessment category	**Transition application model category**	**BEE assessment category**	**Transition application model category**
Capital expenditure	Information technology	IT	Meters and installation	Remotely read interval meters & transformers
	Other capital expenditure	Other	Communication	Communications
Operating expenditure	IT infrastructure	O&M Expenditure	Other operating expenditure	O&M Expenditure
	Communication infrastructure			

Source: JEN Analysis

53. Because every BEE assessment category can be mapped fully to a category in the transition application model there is no need for further cost apportionment thus simplifying the modelling exercise and eliminating the need for any further judgements for assessing costs.

54. Given the AER and Energeia have determined JEN's expenditure excess over the 2009-15 period is inefficient it becomes necessary to identify a process for adjusting the transition charge to remove any inefficient costs that are proposed to be recovered. To the extent possible, adjustments to the transition charge should reflect as closely as possible to the BEE. JEN proposes that for the statistically significant categories outlined in Table 2–4, a comparison between JEN and the BEE should be undertaken, if actual expenditure is greater than that of the BEE then the variance should be removed from the transition application model for that category. This is a

[37] Whist meter density does not play a part in top down benchmarking; it does play a part in the development of bottom-up benchmarking (see section 3.3.1.1).

conservative approach as it does not account for cross-category cost transference where the savings in one category could be offset, in part or full, by legitimate cost excesses in another.

55. The advantage of this model is that it assesses the efficiency of expenditure over the 2009-15 period as required by the AMIOIC but can also be applied to determine efficient expenditure excess in a given year. In contrast, Energeia's model does not perform the second step and must rely on alternative methods to adjust expenditure in 2014 and 2015.

2.3.4 CONCLUSIONS

56. From this analysis it can be concluded that:

- For average meters, akin to variable capital expenditure (i.e., the cost to install each meter) there is a high statistical significance and is, therefore, relevant to the construction of a BEE.
- Operating expenditure alone is not statistically significant; however, once split into fixed and variable categories the resultant t-tests are statistically significant.

57. In the following sections, we undertake the assessment of excess expenditure using the parsimonious model.

2.4 ASSESSING JEN'S CAPITAL EXPENDITURE RELATIVE TO THE BEE

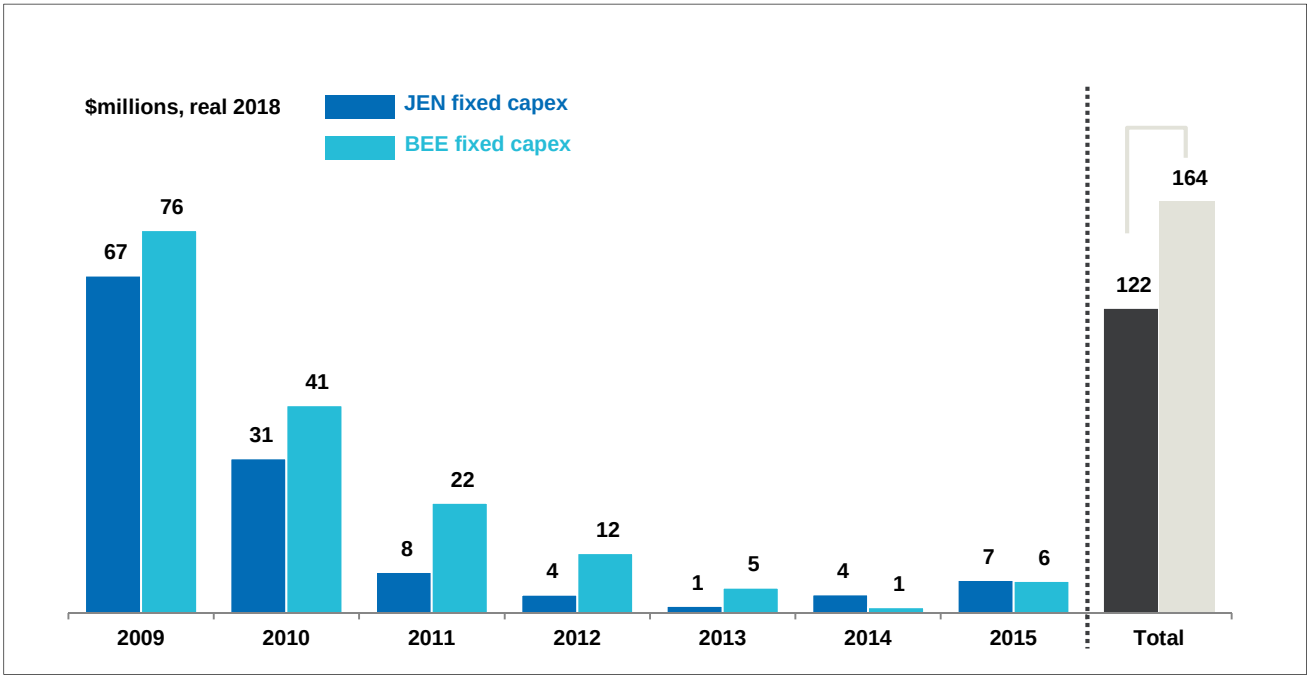
58. In its report, Energeia states JEN's capital expenditure was excessive, however, fails to assess this in the context of fixed and variable analysis. We undertake the review of the fixed and variable capital expenditure below and consider how to apply the analysis to the transition charges model.

2.4.1 ASSESSING JEN'S FIXED CAPITAL EXPENDITURE RELATIVE TO THE BEE

59. As can be observed in Figure 2–4, JEN's fixed capital expenditure is below the BEE for the whole of the initial regulatory period. Given the overall expenditure efficiency, and consistent with the requirements of clause 5I.7AA,[38] we do not propose any adjustments to the transition charges model for fixed capital expenditure.

[38] which stipulates that "the expenditure excess is prudent where the expenditure of the distributor over the entirety of the initial regulatory period reasonably reflects the efficient costs of a business providing the Regulated Services over the entirety of that period"

Figure 2–4: Fixed capital expenditure comparison - 2009 to 2015 ($M, 2018)



2.4.2 ASSESSING JEN'S VARIABLE CAPITAL EXPENDITURE RELATIVE TO THE BEE

60. Applying the top-down models against the BEE yields the results outlined in Table 2–6 for variable capital expenditure (i.e., 'meter purchases and meter installation' in the transition charges model per the mapping in Table 2–5) per meter by Victorian distributor.

Table 2–6: Variable capital expenditure excess relative to BEE ($2018/meter)

Distributor	2009	2010	2011	2012	2013	2014	2015
UE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Powercor	0.78	84.62	88.88	81.08	20.81	(22.57)	7.33
CitiPower	(4.28)	65.12	61.26	47.67	(0.31)	(31.16)	4.00
SP Ausnet	2.46	43.10	62.08	101.03	76.28	21.18	18.23
JEN	14.12	7.94	(8.43)	4.12	30.62	1.10	(2.69)

Source: JEN Analysis

61. Applying these excess unit rates to the volumes installed in 2014 yield the total capital expenditure excess as outlined in Table 2–7.

Table 2–7: Variable capital expenditure relative to BEE in 2014 ($)

	Base year	Amount
MRO meters installed[(1)]	2014	26,782
Excess rate (per Table 2–6)	$2018	-1.10
Conversion factor	2018 to 2015	1.266

	Base year	Amount
Total expenditure excess	$2015	- 23,211

(1) Source: Table 4-2, JEN, *Advanced Metering Infrastructure, Transition application*, 31 May 2016

62. Such small variances to actual expenditure demonstrate overall efficiency in the delivery of variable capital expenditure.

2.5 ASSESSING JEN'S OPERATING EXPENDITURE RELATIVE TO THE BEE

63. When comparing JEN's operating expenditure to the BEE, the results outlined in Table 2–8 are produced.

Table 2–8: Fixed and Variable operating expenditure relative to BEE 2009-15 ($2018)

Distributor	Total operating expenditure ($M)	Fixed operating expenditure ($M)	Variable operating expenditure ($M)	Average meters (#)	Variable operating expenditure per meter ($)	Variable operating expenditure per meter (relative to BEE) ($)
UE	174.8	73.6	101.23	652,352	155.18	0.00
Powercor	168.9	48.1	120.72	721,475	167.32	-12.14
CitiPower	84.3	29.0	55.23	309,537	178.44	-23.25
Ausnet Service	314.4	90.0	224.48	681,735	329.28	-174.10
JEN	**130.8**	**75.4**	**55.40**	**313,146**	**176.92**	**-21.74**

Source: JEN analysis

64. In the following sections we analyse this information in the relevant fixed and variable proportions of operating expenditure.

2.5.1 FIXED OPERATING EXPENDITURE

65. As outlined in Table 2–8 JEN incurred $75.4M ($2018) of fixed operating expenditure over the initial regulatory period. This is $1.86M ($2018) above the equivalent BEE's fixed operating expenditure of $73.6M ($2018). As each distributor incurs fixed costs[39] the quantum of cost does not scale relative to the size[40] of the distributor—it, therefore, appears that JEN has overspent above the BEE over the initial regulatory period.

66. To account for JEN's operating expenditure above the BEE, it is necessary to apportion the cost in each year over the initial regulatory period to determine the amount of adjustment in each of 2014 and 2015. Similar to fixed nature of costs across distributor, the expenditure should be fixed across time, therefore a simple division of the $1.86M ($2018) over each of the seven years in the initial regulatory period yields JEN incurring an annual fixed operating expenditure excess of $265k ($2018) relative to the BEE.

[39] The one exception to this is Powercor and CitiPower, where some further efficiencies can be extracted due to commonality in process and system.

[40] Size in this instance relates to a range of factors including the number of meters to be installed, the distances travelled to install meters and the land mass serviced by the distributor.

2.5.2 VARIABLE OPERATING EXPENDITURE

67. Having established the statistical significance of variable operating expenditure identified in Table 2–8 it is also possible to assess JEN's variable operating expenditure using a similar process to that used in section 2.4.2 for assessing variable capital expenditure. The results of this exercise are outlined in Table 2–9.

Table 2–9: Variable operating expenditure relative to BEE in 2014 and 2015 ($2018)

	2014	2015
Meters installed(1)	26,782	1,103
Excess rate	-21.74	-21.74
Expenditure excess	**-582,213**	**-23,976**

(1) Source: Table 4-2, *JEN, Advanced Metering Infrastructure, Transition application*, 31 May 2016

2.5.3 TOTAL OPERATING EXPENDITURE VARIANCE

68. When combined, the total expenditure in excess of the BEE is as outlined in Table 2–10.

Table 2–10: Total operating expenditure in excess of BEE ($)

	Base year	2014 ($)	2015 ($)
Fixed	$2018	265,000	265,000
Variable	$2018	582,213	23,976
Total	$2018	847,301	289,067
Conversion factor	$2018 to nominal	1.2660	1.1782
Total adjustments to initial application operating expenditure	**Nominal**	**-669,297**	**-245,342**

Source: JEN analysis

2.6 INTERIM MODEL ADJUSTMENTS

69. Taking the results of the variable capital expenditure excess (refer to Table 2–7) and the results of the operating expenditure excess (refer to Table 2–10), an overall adjustment to the transition charges model can be produced. The outcomes of the top-down benchmark analysis are included in Appendix B1.

3. BENCHMARKING – BOTTOM-UP ANALYSIS

Key Messages

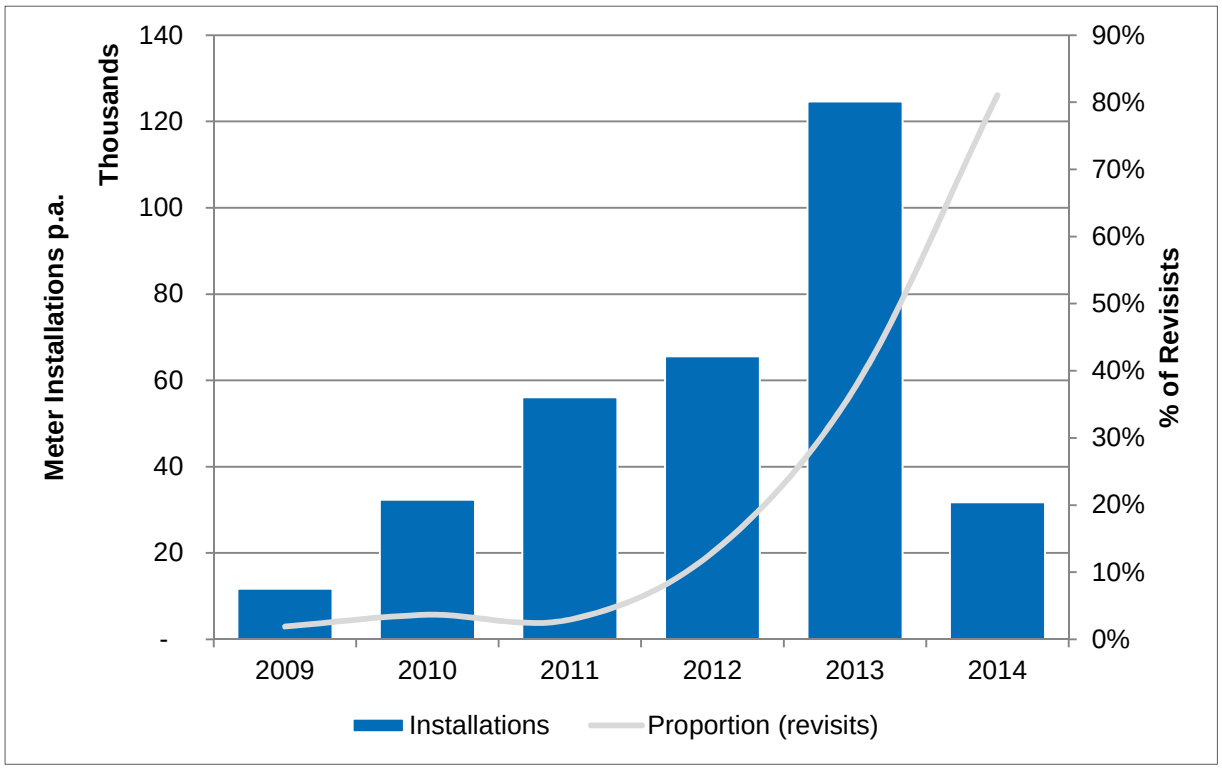
- JEN faces unique circumstances relative to UE in that it rolled-out considerably more meters earlier in the initial regulatory period, in order to comply with the best-endeavours obligation to complete the roll-out by December 2013.
- In its draft decision, the AER has not constructed an appropriate BEE by not taking into account the difference in timing of the roll-out, this has resulted in an incorrect assessment of JEN's expenditure efficiency in 2014 and 2015.
- Using a bottom-up benchmarking technique that takes the timing difference into account, JEN demonstrates that it is efficient in the provision of regulated services. Only modest excesses—relative to the properly-constructed BEE—have been incurred in the areas of:
  - Meter installation capital expenditure (capital expenditure) $1.8M ($2014)
  - Meter roll-out back-office expenditure (capital expenditure) $0.1M ($2014)
  - Meter data collection expenditure (operating expenditure) $0.6M ($2014) and $0.7M ($2015)
- For all other expenditure over 2014 and 2015 JEN has demonstrated it is efficient in its expenditure relative to the BEE.

3.1 CONTEXT - COMPLETING THE METER ROLL-OUT

70. Half way through 2014, JEN closed down its AMI mass roll-out program (**MRO**), noting the efficiencies for completing homogeneous installations had mostly been exhausted. Accordingly, JEN's compliance with AMI-related regulatory obligations during 2014 and 2015 was largely achieved via **BaU** activities (rather than project-specific MRO activities), for reasons as follows:

- in the first half of 2014 the MRO resulted in higher expenditure per meter than in earlier years because the jobs were more complex:
  - multiple site visits were required for a single job because of a range of reasons outside of JEN's control. These included access refusals, locked gates, businesses requesting appointments, and inability to isolate supply. Having addressed the 'vanilla' work early in the MRO program (in part due to the changing requirements), the proportion of site visits required for the residual—and more complex work—increased significantly, resulting in the appearance of higher installation rates (See Figure 3–1);

Figure 3–1: Effort to install meters increased towards the end of the MRO program (2009 to 2014)



Source: JEN Analysis

- the types of meters being installed were more sophisticated relative to those installed earlier years of the AMI program and therefore more costly to complete. The key reasons for deferring the installation of complex meter types were imposed by the dynamic nature of the MRO obligations (given the numerous changes to the AMIOIC over the initial regulatory period) and the potential to incur expenditure unnecessarily. In Figure 3–2 it can be observed that around half of the meter installation types in 2014 are the 'non-vanilla'—that is they are not single phase, single element direct connection meters, but types of meters that are more complicated to install because they involve more complex wiring:
  - **2 element meters** – wiring the second element for hot water units and/or slab heating (see Box 3-1)
  - **Controlled loads** – ensuring time-switches, contacters and other control equipment are wired correctly
  - **Three phase direct connect meters** – dealing with higher amperage equipment
  - **Three phase current transformer meters** – dealing current transformer device wiring

Box 3-1 – Implementation of restrictions on tariff reassignment by the Victorian Government directly impacted the costs JEN incurred to deploy AMI meters.

- The requirement to install two-element meters itself came late in the program. In the setting of the 2012-15 budget, JEN was not given any allowance for two-element meters.[41] This decision was made by the AER on the basis that there was not a sufficient business case to install the two-element meter. Under design imposed through the 2012-15 budget decision, JEN would have to reassign customers from

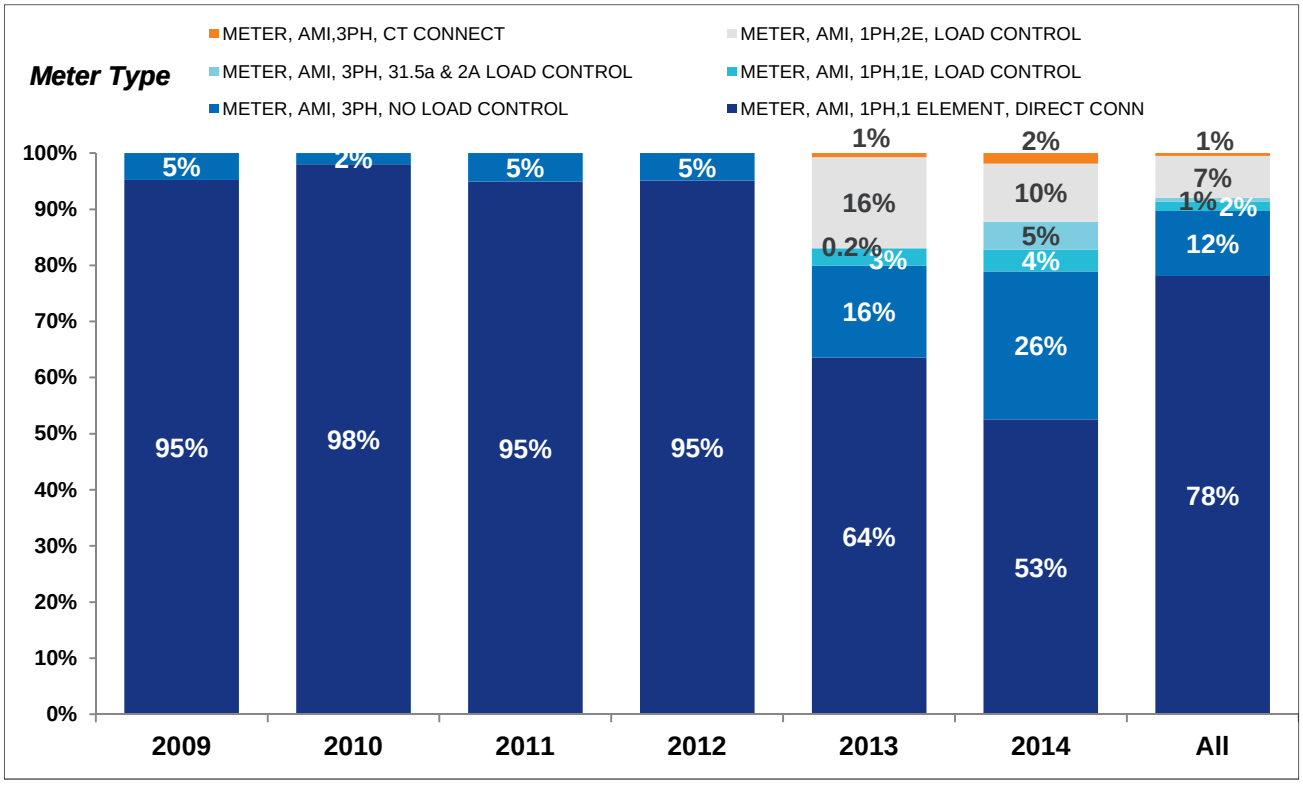
[41] AER, *Final Determination, Victorian Advanced Metering Infrastructure Review 2012–15 budget and charges applications, public version,* October 2011, Pg. 13.

controlled load tariffs to time of use tariffs (**ToU**) to ensure customers were still able to access off-peak pricing for those appliances formerly on controlled loads tariffs.

- This strategy met significant community and political resistance which resulted in a moratorium on network tariff reassignment (see appendix D1, 22 March 2010). Following this period of review, it became necessary to install two-element meters due to the changes in tariff reassignment laws—outlined in the flexible pricing order-in-council—which changes the tariff reassignment from distributor discretion to customer initiated,[42,43,44] resulting in the 'back-ending' of complex meter installations in the MRO program. Had JEN known about the requirement to install two-element meters from the commencement of the MRO, a more efficient program would have been developed.

By nature these activities—for a smaller proportion of meters when compared to the whole MRO program—require specialist training and are therefore more costly to install.

Figure 3–2: Installation of AMI meters by Type (2009 to 2014)



Source: JEN analysis

42 Vic. Gov. Gazette No. S 216 Wednesday 19 June 2013.

43 See Appendix D, 27 Sep 2012.

44 At the time, JEN's management decided that installing two-element meters would be more efficient than engaging with customers (and the customers' retailer) to gain their approval for reassigning network tariffs. This proved to be an efficient decision as the reassignment rate under the flexible pricing order has yielded only two percent of customer voluntarily taking up the flexible pricing tariff. This low level of churn would have caused higher total cost as (i) incremental engagement activities would have been required and (ii) for the vast majority a two-element meter were required irrespective of the acceptance of tariff reassignment.

- jobs were conducted using BaU processes in the second half of 2014 and all of 2015 following the closure of the MRO program. Given the relatively low volume of meter installations at the end of the MRO program and the complexities of installing meters at the remaining sites, MRO processes would have become inefficient if they had continued beyond mid-2014. To keep the MRO program open beyond mid-2014 would have caused JEN to incur additional costs and effort to meet its best-endeavour obligations and the ongoing obligation to install AMI meters (clause 14AA) due to:
  - continuously revisiting sites (beyond best endeavours obligations) versus only going when invited,
  - sparsity between jobs means there were no more jump-the-gate opportunities left to leverage efficient roll-out processes, *and*
  - residual work volumes could be managed within BaU processes.

  Therefore from that point, JEN's management decided to use BaU processes—developed and optimised for point-to-point services such as the alternative control services (**ACS**) of new connections and truck visits—to meet the final stage of its continuing roll-out obligations.

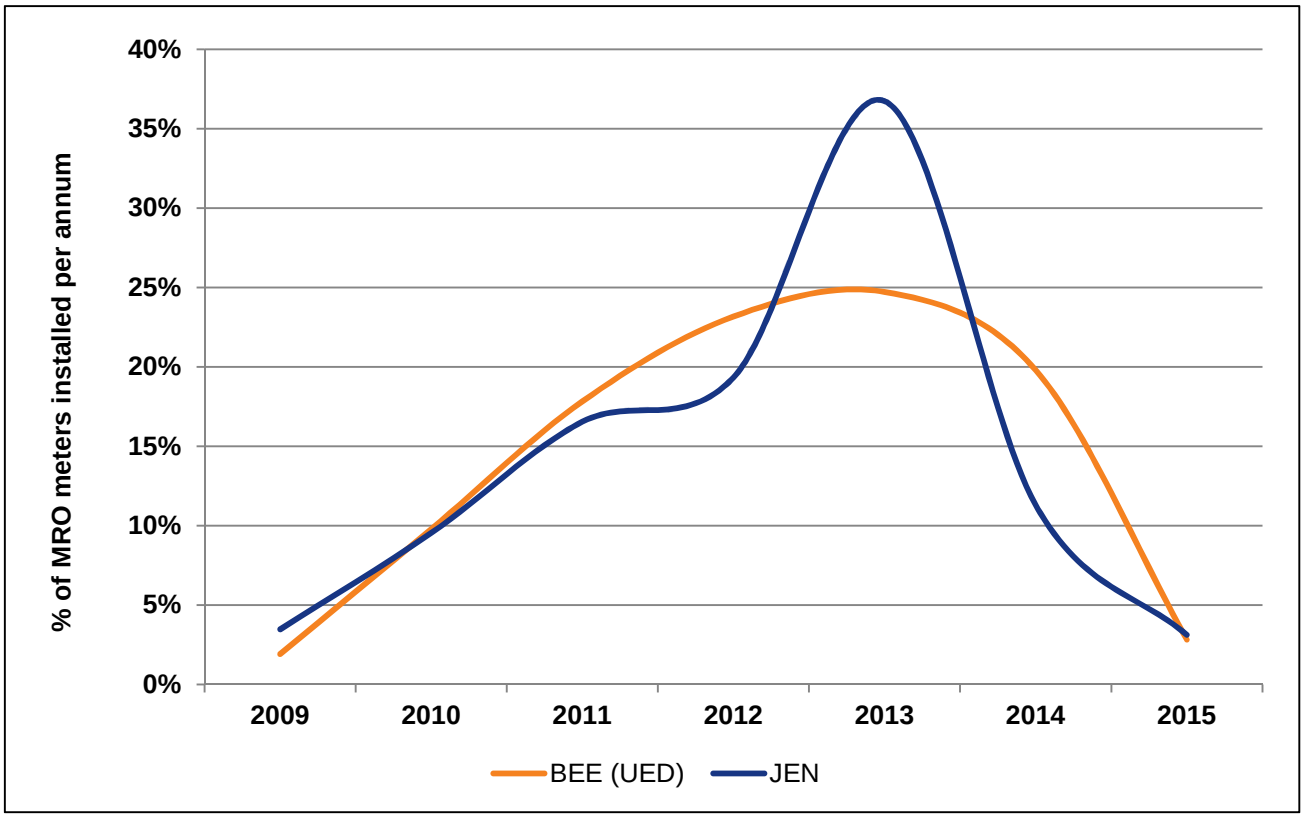
71. These reasons justifying why JEN incurred higher than budgeted expenditure for installing meters during 2014 and 2015 also apply to justifying JEN's increased back office costs to support the field processes, as the each additional site visit requires an associated level of back-office support. For example, booking appointments to make a field visit is a back-office activity that directly correlates to the performance of the field based activity.

72. At the beginning of 2014, each distributor in Victoria had made different levels of progress in achieving the AMI roll-out obligations; this is important because when constructing a BEE the cost to serve will be impacted depending on the circumstances at the time. Energeia selected UE as a BEE[45] although UE was at a different stage of AMI roll-out relative to JEN. In particular, the AER selected an entity as the BEE that had achieved less progress with the roll-out by the end of 2013 compared to JEN. As can be observed in Figure 3–3, the deployment of meters in 2014 and 2015—particularly for JEN relative to the BEE—reduces in volume over time and the remaining meters were complex thus requiring specialist practices due to the increased complexity of work (as noted above), to complete those jobs remaining at the end of the initial regulatory period. In 2014, UE was still rolling out meters under its MRO program (with 20% of meters still being installed by UE in 2014) whereas at the same point in time JEN had mostly completed its MRO.

73. For 2015 both businesses were similar in roll-out proportions at around 3% indicating both JEN and UE were installing under BaU conditions.

[45] Except for IT systems, where Energeia nominated JEN as the BEE, and meter data collection where they chose Powercor to be the BEE.

Figure 3–3: Meter installation profile (MRO, New connections & Adds/Alts)



Source: JEN Analysis

74. Figure 3–3 also shows that JEN undertook a comprehensive exercise to complete as much of the roll-out program as possible by the end of 2013, to meet the best endeavours obligations outlined in the AMIOIC - as evidenced by the spike in volumes in 2013. This significant additional effort is reflective of the priority that JEN management has placed on ensuring compliance with this obligation. As a result, JEN incurred significant further costs. In its review of best endeavours obligations, the ESCV concluded that JEN met its obligations, to a greater extent than UE had achieved[46] - most notable is the ESCV's conclusion that JEN had met 90% of the roll-out target whilst UE only achieved 83%. This level of performance supports the observation of JEN having to focus on a far greater proportion of more complex jobs in 2014.

Interference in the MRO program can be demonstrated

75. In considering why meter installation was undertaken at BaU rates from 2014, it is also relevant to consider the pattern of installing meters across the electricity distribution area. If the deployment occurs in an orderly way then there is no loss of efficiency. However, as the planned roll-out was interfered with—for reasons which included the change in Government policy on tariff assignment, the stop-start nature of the roll-out program and the high number of access refusals (see further details on these issues in Appendix D)—then the impacts on travel times should be considered. This interference occurred for all of the Victorian distributors in one way or another, however for JEN the case is all the more problematic because of reasons including, but not limited to:

- JEN was the only distributor that was not given a budget allowance for two–element meters (See box 3-1).

[46] ESCV, *Compliance with AMI Regulatory Obligations as at 31 December 2013 (Victorian Electricity Distributors) – Final Report*, October 2014 (C/14/14640), Table 1.

- JEN had a disproportionately high number of customer refusals at the time of installing meters (see Figure 3–5).

76. To illustrate further, Appendix A outlines the installation of AMI meters across the JEN distribution area from year to year. As can be observed, the installation of meters initially occurred in an orderly and progressive pattern, however, by 2014 JEN was forced to roll-out meters in a less orderly way to meet the roll-out obligations under the AMIOIC because of environmental factors beyond JEN's control. As a result, travel times for individual jobs are necessarily longer and therefore the expenditure for field-based activities (including meter installation, the associated back-office costs and field-based meter reading) increases. Further details on this material can be found in Oakley Greenwood's report[47] (see Attachment 4).

3.1.1 CONCLUSION

77. Given the evidence provided above, the only conclusion that can be logically drawn is that JEN was operating under BaU conditions for 2014 and 2015 (or at least at an MRO cost that would be equivalent to BaU rates given the higher unit costs per installation at the end of the MRO) whilst UE was working under MRO conditions in 2014, only transitioning to BaU in 2015.

78. It is therefore necessary to determine a set of benchmark unit rates under BaU circumstances for JEN in each of 2014 and 2015, to avoid penalising JEN for rolling out meters in accordance with its best endeavours obligations (and considerably earlier than UE), which would occur if MRO rates substituted to BaU activities (as has occurred in Energeia's modelling).

79. It should also be noted that whilst JEN utilised BaU processes for meeting the final stages of its roll-out commitment from mid-2014, the execution of these activities are not funded through other sources such as standard control services (**SCS**) or ACS. Allowances for standard control services set in the 2011-15 EDPR period did not account for higher volumes of activities that have come through AMIOIC obligations. Furthermore, although ACS activities are charged directly to customers, in the case of AMI meter installations JEN is not allowed to charge customers directly.

80. Given this, it remains the case that JEN must charge for the activities through the AMI prescribed meter charges and therefore settle costs through the transition charge.

3.2 METHOD FOR ADJUSTING PROPOSED EXPENDITURE

3.2.1 A VARIETY OF APPROACHES WERE USED

81. In the draft decision there were elements of JEN's operating expenditure and capital expenditure which were assessed as being efficient and others that were not. To address the areas of inefficiency the AER took advice from Energeia—as well as undertaking its own analysis—to make adjustments to the transition application model to determine the transition charges amount. In making the changes the AER has applied a variety of techniques which creates confusion and has introduced errors.

82. The methods applied fall into three broad categories where the model inputs are either:

- developed consistent with the design and operation of the transition application model
- developed by reference to the 2012-15 budget rather than the initial application
- ignores the benchmark analysis and relies on 2012-15 budget amounts.

[47] Oakley Greenwood, *AMI transition charges review, prepared for: Jemena Electricity Networks*, 18 October, 2016, Pg. 22.

83. A summary of the AER's adjustments and how they are applied to each of the operating expenditure and capital expenditure categories is outlined in Table 3–1.

Table 3–1: AER's approach to adjusting cost category amounts

Expenditure category	Approach to adjusting the draft decision model	JEN comment[48]
Capital expenditure		
Meter supply (Mass Roll-out)	Includes the full amount as proposed in JEN's initial application into the draft decision transition application model	Consistent application of model inputs to model operation
New Connections, Adds and Alts	Includes the full amount as proposed in JEN's initial application into the draft decision transition application model	
Installation (Mass Roll-out)	Started with the 2012-15 budget allowance and then added the benchmark adjustment provided by Energeia	Erroneous as the adjustment uses the 2012-15 budget base
AMI Technology and Communications	Accepted JEN as the benchmark but used 2012-15 budget allowance	Erroneous as the AER has ignored benchmark efficiency analysis conducted and relied solely on the 2012-15 budget base
IT Infrastructure & Systems	Accepted JEN as the benchmark but used 2012-15 budget allowance	
MRO Back Office	Correctly included a benchmark adjustment	Consistent application of model inputs to model operation
Operating expenditure		
Meter Data Collection	Considered JEN's proposal and updated model using an alternative approach	Consistent application of model inputs to model operation
All other operating expenditures	Adopted 2012-15 budget allowance	Erroneous as the adjustment uses the 2012-15 budget base

Source: JEN analysis

84. We address the issues of *developing model inputs from the 2012-15 base* and *ignoring the benchmark analysis* below.

3.2.2 DEVELOPING MODEL INPUTS FROM THE 2012-15 BASE

85. To understand this issue, it is first necessary to outline the method adopted for making adjustments to the transition application model.

86. As noted in section 5.1 of JEN's initial application, expenditure excess was reported under section 5 by "**key** cost categories" (emphasis added); that is, not all expenditure excess was outlined in section 5 of the initial application. Whilst not explicitly stated, this approach was adopted to be consistent with the method used by the AER—and its then consultant Energeia—in its review of the 2013 expenditure excess. In that review, only categories that were "high value and high risk" were reviewed with the other categories considered to be immaterial.[49] The approach adopted by Energeia in the review of 2014 and 2015 expenditure excess follows the same method - Energeia relevantly states: "[i]t is consistent with the approach we developed to assess the

[48] These comments relate to the methodology applied, not the quantum of the adjustment.

[49] Energeia, *Review of Victorian Distribution Network Service Provider's Advanced Metering Infrastructure 2015 Charges Revision Applications, Prepared for the Australian Energy Regulator*, December 2014, section 4.

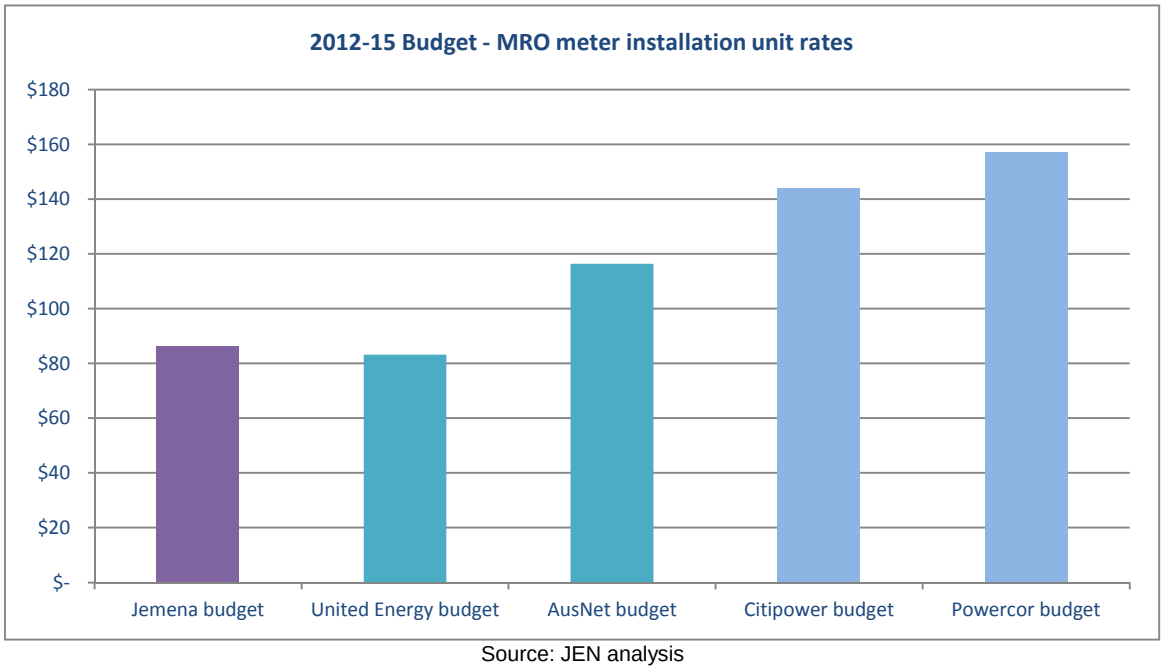
2013 excess expenditure".[50] Finally, Energeia only looked at four sub-categories,[51] one of them relating to operating expenditure, namely MDC. This confirms that the other expenditures were to be considered to be efficient on the basis of immateriality and consistency with previous methods.

3.2.2.1 Budget amounts cannot be relied up

87. The assessment of efficiency under the most recent market conditions is superior to the use of the 2012-15 budget for assessing efficiency as it reflects the circumstances that an efficient entity is faced with in light of obligations and other market conditions that evolved and were not foreseen at the time when developing the 2012-15 budget. The underlying objective of the AMIOIC is to assess the prudency and efficiency of costs; it is not a test of a business' forecasting skills. Given this, the only use of the 2012-15 budget once handed down is as a base to determine whether or not there is even an expenditure excess. After this step, the 2012-15 budget becomes irrelevant – the only question from that point on is whether the expenditure excess was efficient, and the 2012-15 budget is not relevant to considerations of efficiency.

88. Discarding the 2012-15 budget at this point, rightfully, removes the distortions inherent in the differing budget allowances set for each of the Victorian distributors when assessing efficiency. For example, JEN had a comparably low meter installation allowance, on a per unit basis, putting it at a disadvantage to all other Victorian distributors (See Figure 3–4). This was even lower than those of Powercor and CitiPower - that are not subject to ex-post review - not because of efficiency, but because they were allowed a higher 2012-15 budget.

Figure 3–4: 2012-15 Budget - MRO meter installation unit rates ($/meter)



Source: JEN analysis

89. It should be noted at this point that the draft decision determines UE to be the BEE on all components except for Information Technology and Communications. For that expenditure category, Energeia determined JEN to be the BEE. This means that UE is not the BEE in its entirety. Given this, when considering UE's expenditure

[50] Energeia, *Review of Victorian Distribution Network Service Provider's Advanced Metering Infrastructure 2015 Charges Revision Applications, Prepared for the Australian Energy Regulator*, December 2014, Pg. 2.

[51] Energeia, *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications Prepared for the Australian Energy Regulator*, September 2016, Pg. 25.

excess against the BEE, no adjustment was made to its allowance relative to the 2012-15 budget; that is, the AER has applied model input adjustments inconsistently across the distributors.

90. By adjusting model inputs to the 2012-15 budget, the AER has penalised JEN to a greater extent than the BEE (especially in 2014 where even UE had excess expenditure), not only by cutting expenditure to a level of the BEE, but also to the lower budget allowance which even UE were not cut to in 2014.

91. The AER is not constrained to use the 2012-15 budget to assess efficiency; it is possible to consider other techniques. The AMIOIC allows for this by retaining the assessment of expenditure using techniques such as competitive tender processes (Cl 5I.7B(c)). This is noted in Oakley Greenwood's report[52] (see Attachment 4) where they state:

> *Contrary to Energeia's implicit assumption, it is not a requirement of the AMIOIC to use the results of any benchmarking analysis to the exclusion of any other factor mentioned in the AMIOIC, including contract costs. If this were the intention, the clauses discussing these factors would have been removed from the AMIOIC altogether. Rather, the terms in the AMIOIC regarding may and must appear to us to reflect the relative priority of different types of information (i.e., benchmarking results should be given first priority). To be more direct, there is nothing in the AMIOIC that would suggest that the AER (and, by association, Energeia in advising the AER) should place reliance on an incorrect benchmark simply because it is a "benchmark" where other factors mentioned in the AMIOIC are relevant.*

92. Whilst clause 5I.8B of the AMIOIC provides guidance on benchmarking techniques, and whilst clause 5I.8B(b)(ii), 5I.8B(a) and Cl 5I.8B(c)(vi) give the AER discretion on the approach it takes to benchmarking, it does not provide guidance in the affirmative to adopt the ex-ante budget as an input into benchmarking. If this were the intent then the AMIOIC would have been drafted as such. Rather, the intent of this benchmarking under the AMIOIC is to re-evaluate efficiency in light of changed circumstances. If there was an intent to simply rely on budget allowances the AMIOIC would not provide for a review of efficiency.

93. Given there is a very wide range of changes in circumstances that JEN has been subjected to since the 2012-15 budget was finalised (see Appendix D), and that even a BEE would have had its cost structure amended as a result of these exogenous factors, the efficient costs would necessarily be something other than the ex-ante budget. Put another way, if the 2012-15 budget process was to be re-run today, it would necessarily have a different outcome to setting efficient allowances relative to when the 2012-15 budget was originally prepared.

94. Because of these reasons, the AER cannot simply rely on the 2012-15 budget allowance to assess ex-post efficiency; it must adopt an alternative approach.

3.2.2.2 Proper approach to adjusting transition model inputs

95. For the approach intended by Energeia to work, the following method should be followed <u>for each</u> *high-value and high-risk* expenditure category:

a) Start with JEN's initial application (1)

b) *subtract* the actual amount (2)

c) *add back* the benchmarked amount *(*3).

For simplicity purposes the formula is (1) – (2) + (3).

---

[52] Oakley Greenwood, *AMI transition charges review, prepared for: Jemena Electricity Networks*, 18 October, 2016, Pg. 3.

96. The benefit of this approach, as noted in the 2013 review of expenditure excess,[53] is that the AER can achieve the substantive review of the in-scope expenditure by focusing on only the material expenditure excesses and not having to review the remaining immaterial expenditures.

Operating expenditure adjustment error

97. In Energeia's report it can be observed in Table 1[54] that the categories against the "Application" columns, do not add up to the amounts in the models submitted by the Victorian distributors. This demonstrates that the confusion between the category (i.e. operating expenditure) and sub-category (i.e., MDC), has resulted in an incorrect model adjustment in the draft decision.

98. Aside from the reasoning that budget allowance cannot be relied on (as noted above), the way the adjustments have been applied in the transition charges model are also erroneous. Given the approach adopted by Energeia in the 2013 expenditure excess review to ascertain input model adjustments is the same in its review of this 2014 and 2015 expenditure[55] the AER has erred in its modelling by referring to 2012-15 budget amounts given these were not the base from which Energeia calculated the model input adjustments.

Capital expenditure adjustment error

99. The capital expenditure category *'installation (mass roll-out)'*, is similarly erroneous. The issue is that the adjustment provided by Energeia is relative to the amount in the initial application and not the budget amount, using the wrong base in the adjustment causes an error to occur.

3.2.2.3 Benchmark analysis ignored

100. After undertaking an assessment of expenditure efficacy by Energeia, the AER ignored the outcomes, and instead reverted to the 2012-15 budget amounts without explanation or reason. As noted above, this approach is not the intent of the AMIOIC.

101. Most interesting is the fact that Energeia specifically calls JEN out as being the BEE for IT and therefore JEN's actual IT expenditure must be efficient, and yet the AER ignores this assessment and substitutes JEN's (lower) budget allowance into the transition application model to determine transition charges. This approach is inconsistent with the efficiency findings and had led to erroneous outcomes.

Capital expenditure adjustment error

102. For the capital expenditure categories of *AMI Technology and Communications* and *IT Infrastructure & Systems* the draft decision adopted the approach of ignoring benchmarking analysis. For the reasons outlined above the AER has erred in making a constituent decision on capital expenditure.

3.3 USE OF BENCHMARKS – CAPITAL EXPENDITURE

103. In its review of capital expenditure categories of costs, Energeia assessed a number of sub-categories. We respond to the concerns in each of the assessments of capital expenditure sub-categories below.

---

53 Energeia, *Review of Victorian Distribution Network Service Provider's Advanced Metering Infrastructure 2015 Charges Revision Applications, Prepared for the Australian Energy Regulator*, December 2014, Section 4.

54 Energeia, *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications Prepared for the Australian Energy Regulator*, September 2016, Pg. 4.

55 Noting that the adjustments identified in Energeia's models correspond to the amounts in the charges applications as being the base amounts.

3.3.1 METER INSTALLATION

104. The AER has accepted JEN's 2015 meter installation capital expenditure on the basis of lack of materiality; the below content relates to JEN's 2014 expenditure in this sub- category.

3.3.1.1 Methods for determining an efficient meter installation rate

105. There are several ways to construct a benchmark meter installation unit rate for 2014-15 using publicly available data. We consider these alternatives below.

Using 2016-20 EDPR rates

106. In its final 2016-20 EDPR decision for JEN[56] the AER considered a meter installation unit rate of $293.16 ($2015) was efficient.[57] Part of the allowance comprises a back office cost of $82.33 ($2015) per meter. After removing this back-office portion, the field amount of the meter installation unit rate comprises $210.83 ($2015) or $204.09 ($2014) after adjusting for labour escalation. As noted above, 2014 and 2015 are effectively BaU periods for JEN in terms of cost for installing meters and therefore the AMI meter installation rates allowed for over the 2016-20 regulatory control period are more likely to be aligned with rates a BEE in JEN's circumstances would incur in 2014 and 2015.

Normalise 2013 MRO rates for BaU equivalence

107. In its 2013 benchmarking report, Energeia assumed that one-quarter of the time taken for a meter installation was due to travel time between meter installations, and each installation should take about an hour during the roll-out.[58] As explained by Oakley Greenwood,[59] it is not sufficient to simply scale up JEN's MRO rate by 25% to determine a BaU equivalent cost, but rather a 34.28% uplift to the MRO rate is required due to the changing density brought about by the differing stages of the MRO completion. After applying the density adjusted escalations to the benchmark installation unit rate to the MRO rate of $158.07 ($2014) per meter, the BaU comparable rate becomes $212.25 ($2014) per meter.

JEN submission

108. Given the limited data readily available to construct a benchmark meter installation rate and that there are alternative methods to determine a benchmark unit rate, JEN proposes to adopt a simple average approach from the two methods outlined above as a means to balance any biases in either of the two methods. The outcomes of this approach are outlined in Table 3–2.

Table 3–2: Proposed meter installation rate under BaU circumstances ($, nominal)

	2014
Using 2016-20 EDPR rates	$204.09
Normalise 2013 MRO rates for BaU equivalence	$212.25
Average	**$208.17**

56 Applying the $2015 rate of $210.83 and discounting for nominal labour escalation of 3.30% per Energeia report.

57 AER, *Attachment 16 -Alternative Control Services, AER Final decision Jemena distribution determination*, May 2016, Pg. 35.

58 Energeia, *Review of Victorian Distribution Network Service Provider's Advanced Metering Infrastructure 2015 Charges Revision Applications, Prepared for the Australian Energy Regulator*, December 2014, Pg. 17.

59 Oakley Greenwood, *AMI transition charges review, prepared for: Jemena Electricity Networks*, 18 October, 2016, Pg. 8.

Source: JEN analysis

109. Applying this 'constructed' installation rate to the meter installation volumes in 2014 results in a total meter installation costs as outlined in Table 3–3.

Table 3–3: Benchmarked 2014 meter installation capital expenditure ($, nominal)

	2014
Meter volumes(1)	26,782
Meter unit rates ($, nominal) (See Table 3–2)	208.17
Total cost ($, nominal)	**5,575,274**

(1) Source: Table 4-2, *JEN, Advanced Metering Infrastructure, Transition application*, 31 May 2016

110. When considering this new benchmark estimate for determining the necessary adjustments (relative to the amount provided by JEN in its initial application) the amounts in Table 3–4 should be considered.

Table 3–4: 'Meter Installation' capital expenditure ($, nominal)

Meter Data Collection	2014
Revised application amount	5,575,274
Actual (initial application)(1)	7,420,362
Variance (implied efficiency adjustment)	**-1,845,088**

(1) Source: Table 5-1, JEN, *Advanced Metering Infrastructure, Transition application*, 31 May 2016

3.3.2 METER COSTS

111. Energeia accepted the expenditure excess in the two sub-categories of *Meters (Mass Roll-out)* and *New connections, Adds and Alts* were efficient. This outcome is further supported by the AER in its final decision for the 2016-20 regulatory control period.

112. Given the endorsement from the AER that JEN has efficient practices in the procurement of meters during the roll-out program it stands to reason that the actual costs outlined in JEN's initial application are also efficient.

113. JEN accepts the outcomes of Energeia's review and the AER's draft decision for this expenditure category and does not propose any amendments to these amounts.

3.3.3 MASS ROLL-OUT BACK OFFICE

114. Energeia's analysis asserts that of the $2.4M meter roll-out capital expenditure incurred in 2014, $1.3M was inefficient. The basis for this conclusion is that JEN's MRO back-office capital expenditure should have been calculated using a rate of $40.20 (nominal) per meter.

115. The method employed by Energeia should have accounted for the fact that the period being reviewed was largely BaU or high cost residual MRO activities, where scale efficiencies are depleted and JEN is having to address the residual complex jobs and difficult customers using BaU processes as outlined in section 3.1.

116. Using information from the 2016-20 EDPR review—in which the AER assessed and provided allowances for metering activities under BaU conditions having completed the MRO in the initial regulatory period—the best estimates of efficient benchmark back-office costs are outlined in Table 3–5.

Table 3–5: Back office capital expenditure

	2014	2015
Back office time[(1)]	60 mins	60 mins
Back office Labour rate (per hr) [(2)] ($2015)	$82.33	$82.33
Meter volumes[(3)]	26,782	1,103
BEE cost ($2015)	$2,204,962	$90,810
BEE cost ($, nominal)	$2,155,226[(4)]	$90,810
JEN initial application ($,nominal)	$2,273,948[(5)]	$0
JEN initial application – BEE ($, nominal)	-$118,722	$0[(6)]

(1) Source: AER, *Attachment 16 – Alternative control services, Jemena Preliminary decision 2016–20*, October 2015, Pg. 16-18.
(2) Source: AER, *Attachment 16 – Alternative control services, Jemena Preliminary decision 2016–20*, October 2015, Pg. 16-48.
(3) Source: Table 4-2, *JEN, Advanced Metering Infrastructure, Transition application*, 31 May 2016
(4) Depreciated by CPI
(5) Source: JEN, *Advanced Metering Infrastructure, Transition application, Public*, 31 May 2016, Table 5-3.
(6) The allowance claimed for 2015 in this application is consistent with JEN's initial application despite being lower than the BEE equivalent cost.

3.3.4 IT SYSTEMS

117. IT systems comprise costs related to Information Technology and Communications. JEN's submission on these expenditure categories is outlined below.

3.3.4.1 Information technology

118. In its report Energeia considered JEN to be the BEE for IT expenditure.[60] Furthermore, Energeia did not find any adjustment was necessary to JEN's IT expenditure as outlined in the "difference" column of Table A of Energeia's report.[61] Despite this, the AER in its draft decision, adjusted JEN's IT capital expenditure by -$1.8m.[62] Unfortunately, there is no explanation as to the basis for this adjustment in the AER's draft decision, and therefore JEN considers the change to JEN's IT capital expenditure to be a function of the methodological issue (see section 3.2).

119. In the draft decision, the AER adopted the IT allowance from the 2012-15 budget application – as noted previously JEN considers this to be erroneous given the assessment of the efficiency of actual expenditure undertaken by Energeia. Based on the evaluation that JEN's IT expenditure is the benchmark, it stands to reason that it is also efficient and therefore the amount to be included in the transition application model should reflect the value in the initial application.

3.3.4.2 Communication

120. The draft decision's treatment of communication capital expenditure was the same as the treatment of information technology costs - that is, Energeia did not consider any adjustment was necessary to JEN's IT

60 Energeia, *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications Prepared for the Australian Energy Regulator*, September 2016, Pg. 4.

61 Energeia, *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications Prepared for the Australian Energy Regulator*, September 2016, Pg. 4.

62 AER [model], *AER approved AMI actual costs 2014-15 - AER approval - 16 September 2016.xlsx, tab "Expenditure excess", cells L60:M60.*

expenditure as outlined in the "difference" column of Table A of Energeia's report.[63] Despite this, in the draft decision JEN's communication capital expenditure[64] was adjusted to reflect the ex-ante allowance from the budget.

121. Similar to the approach put forward in relation to the treatment of Information Technology capital expenditure, JEN contends that the amount to be included in the transition application model should reflect the amount in the initial application given Energeia's assessment that this category of JEN's expenditure is efficient.

3.3.5 REVISED TRANSITION APPLICATION CAPITAL EXPENDITURE INPUTS

122. The adjustments outlined in sections 3.3.1 to 3.3.4 above are reflected in Appendix B2.

3.4 USE OF BENCHMARKS – OPERATING EXPENDITURE

123. The only sub-category considered by Energeia in its review of 2014 and 2015 excess operating expenditure relates to MDC.

124. JEN incurs costs that are in scope[65] and recoverable under clause 5I.2(a)(ii) of the AMIOIC to collect data to fulfil its MDC obligations as a Meter Data Provider in the National Electricity Market.

125. Clause 14AAB.13(c)(ii) of the AMIOIC excludes the *manual meter costs*[66] that the distributor incurs for reading a meter manually from the transition charges for the period when a *manual meter charge* applies within the initial regulatory period (i.e., 1 April 2015 to 31 December 2015, per clause 14AAB.6(c)(i)). The costs incurred must not be collected through this transition charge application; rather they can be collected from the customer directly. In its benchmarking assessment, Energeia has interpreted this requirement to mean that the costs reported for MDC must either be removed or, as Energeia has done, must be substituted for a different amount that it has deemed to be a benchmark amount for 2014 and for the applicable portion of 2015.

126. The Energeia method adopted for adjusting meter data collection costs (as adopted by the AER in its draft decision) assumes all meter reads are quarterly and does not take into account the:

- mix of quarterly and monthly reads; or
- loss of meter read efficiencies caused by the longer travel times that arise at the end of the AMI meter roll-out.

127. Furthermore, there is inappropriate and inconsistent use of benchmarking, as outlined further below.

128. These observations are further supported by the findings made by Oakley Greenwood[67] at Attachment 4.

---

63 Energeia, *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications Prepared for the Australian Energy Regulator*, September 2016, Pg. 4.

64 AER [model], *AER approved AMI actual costs 2014-15 - AER approval - 16 September 2016.xlsx, tab "Expenditure excess", cells L60:M60.*

65 In scope referring to the cost consider to be recovered as outlined in the AMIOIC S2.1.

66 As defined in clause 14AAB of the AMIOIC.

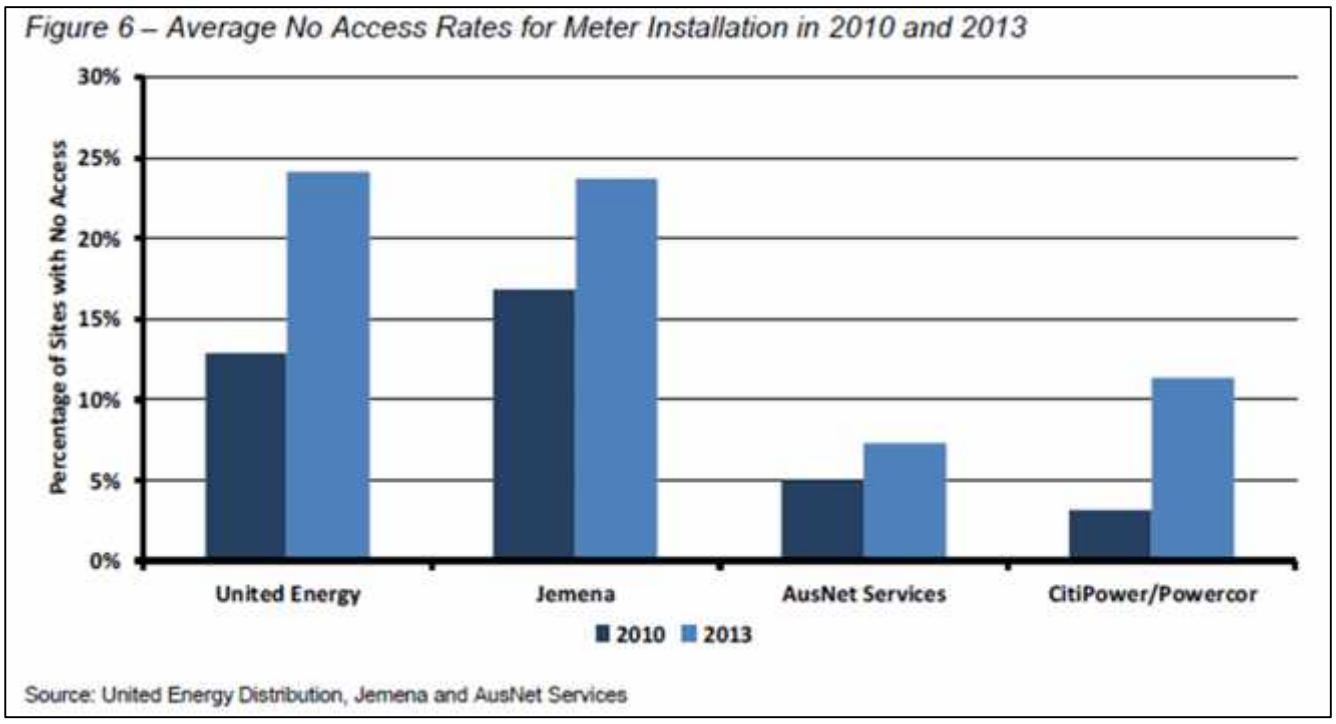
67 Oakley Greenwood, *AMI transition charges review, prepared for: Jemena Electricity Networks*, 18 October, 2016, s 4.4.

Inappropriate benchmarking

129. In JEN's initial application we noted that best endeavours is not a hard and fast requirement to achieve absolute outcomes, but rather a path to achieving an objective to a reasonable standard given the circumstances.[68] This position is supported by the DELWP as outlined in its submission to the AER on the transition applications of the Victorian distributors.[69]

130. The circumstances for each Victorian distributor differ due to a range of factors. One variable of significance is the rate of customers refusing JEN to install AMI meters. As noted in Energeia's report for assessing 2013 expenditure, JEN was exposed to a disproportionately high number of no access refusals relative to some other Victorian distributors as demonstrated in in Figure 3–5 below.

Figure 3–5: Average 'No Access' rates for meter installation in 2010 and 2013[70]



Source: Energeia 2013 ex-post review

131. When considering JEN's performance for installing meters, particularly when compared to Powercor who is called out as being the BEE for this activity, there is a significant disproportion that could cause a variance in costs for MDC because the refusals for JEN has caused delay in the delivery of the program which Powercor did not have to face.

Inconsistent use of benchmarking

132. In the ex-post review of 2013 expenditure and when considering the expenditure of other categories and subcategories in the review of 2014 and 2015 expenditure excess, the AER and Energeia have not assessed the roll-out timing. Rather, their focus has been on the efficiency of expenditure in the circumstances. This

---

68 JEN, *Advanced Metering Infrastructure, Transition application, Public*, 31 May 2016, s. 2.3.1

69 DELWP, *Advance metering infrastructure transition charges applications 2017*, 30 Aug 2016, Pg. 2.

70 Energeia, *Review of Victorian Distribution Network Service Provider's Advanced Metering Infrastructure 2015 Charges Revision Applications, Prepared for the Australian Energy Regulator*, December 2014, figure 6.

approach effectively leaves the timing/volume variances to the best-endeavours assessment framework (conducted by the ESCV in 2014[71]) and cost efficiency to the expenditure efficiency assessment conducted by the AER under the AMIOIC.

133. For MDC, however, Energeia (and by inference the AER) have departed from its practice for costs and decided to consider the timing of the roll-out. This approach is inconsistent with decisions across other years, across other distributors and across the other elements of the draft decision as they apply to JEN, and creates a distorted perception of the BEE by cherry picking elements of the performance of various Victorian distributors that cannot be achieved because performance and cost are often traded-off and thus render the benchmark modelling as invalid.[72]

134. To overcome this deficiency in assessment there are the following options:

- **Assess the roll-out performance of the Victorian distributors for all cost elements as a part of the ex-post review** – This would naturally put JEN ahead of UE as JEN has achieved a more rapid roll-out of meters. Given this, all of JEN's expenditure should be considered efficient and therefore should have no disallowance.
- **Disregard the roll-out performance for assessing volume/timing requirements** – This is the most straightforward approach to resolving the inconsistent approach to addressing the timing/volume issue for this category of costs as the alternative requires a full review of all volumes for all distributors across that has already been conducted through the ESCV's best endeavour analysis.

Proposed calculation

135. To determine the MDC benchmark amount—and address the issues with the benchmark methods adopted in the draft decision—JEN proposes to take the unit rates adopted from Energeia's model for calculating manual meter read charges and multiply it by the number of actual reads conducted over 2014 and for the portion of 2015 over which the AMIOIC permits manual MDC charges to be collected. The calculations are provided in Table 3–6.

Table 3–6: Field based meter data collection ($, nominal)

	2014		2015	
Meter Type	**# of reads[1]**	**Total ($)[2]**	**# of reads[3]**	**Total ($)[4]**
Meter reads monthly - accumulation	13,993	146,278	1,677	18,162
Meter reads quarterly - accumulation	68,783	719,035	7,832	84,821
Meter reads monthly - interval	2,957	30,911	373	4,040
Meter reads quarterly - interval	2,037	21,294	168	1,819
Total	**87,770**	**917,518**	**10,050**	**108,842**

(1) Covering the period 1-Jan-14 to 31-Dec-14
(2) Source: Energeia report, Manual meter reading charge of $10.45
(3) Covering the period 1-Jan-15 to 30-Mar-15
(4) Source: Energeia report, Manual meter reading charge of $10.83

71 ESCV, *Compliance with AMI Regulatory Obligations as at 31 December 2013 (Victorian Electricity Distributors) – Final Report*, October 2014 (C/14/14640).

72 It should be noted than scanning the market for lowest cost in each category is an inappropriate mechanism for constructing a BEE as no business can be efficient on every metric of cost; it implies some level of perfection. This approach is also inconsistent, if Powercor is a BEE then it should be the BEE for all costs because that is the construct of contracts, systems and processes that a BEE is. For example, the metering installation rates for Powercor should be used to compare against JEN. Despite the contradiction and inconsistency, we respond to the issues in the AER's decision noting its approach fundamentally flawed in the construction of a BEE.

136. When applying a consistent approach (that is an approach to adjust the model inputs consistent with the operation of the transition application model) for determining the necessary adjustments (relative to the amount provided by JEN in its initial application) the amounts in Table 3–7 should be used in the transition application model.

Table 3–7: 'Meter Data Collection' operating expenditure ($ '000, nominal)

Meter Data Collection	2014	2015	Total
Revised application amount	918	109	1,027
Actual (initial application)	1,528	806	2,334
Variance (implied efficiency adjustment)	**-610**	**-697**	**-1,307**

Source: JEN analysis

3.5 INTERIM MODEL ADJUSTMENTS

137. The outcomes of the bottom-up benchmark analysis are included in Appendix B2.

4. ASSESSMENT OF BENCHMARK METHODS

Key Messages

- Amongst a range of diagnostic techniques, the closeness of results from the independently developed bottom-up and top-down techniques supports the robustness of each method.
- In its approach to benchmarking, the AER has used a top-down approach to assessing JEN's overall efficiency but used an unrelated bottom-up benchmarking technique as the basis to make adjustments to the transition application model. We consider switching techniques to be in conflict with the requirements of clause 5I.8A which refers to a singular BEE thus rendering Energeia's method unfit for its intended purpose.
- We overcome the deficiencies in the AER's approach by applying a simple average of the results derived from the top-down and bottom-up benchmarking techniques to construct a BEE and thus make adjustments to the inputs used in the transition charges model.

4.1 ROBUSTNESS OF BENCHMARK MODELS AND OUTPUTS

138. In this application JEN has proposed two methods for determining the BEE that is to be used by the AER to assess the efficiency of expenditure of an individual distributor – being the top-down method outlined in section 2, and the bottom-up method set out in section 3. It is prudent to assess the robustness of each method, and thus whether the outputs are fit for purpose and can, therefore, be relied upon for determining the transition charges.

139. Considerations for assessing the robustness of models includes:

- **Statistical cross checks including r-squared and t-test scores** – As outlined in section 2.3.1, JEN has demonstrated high r-squared diagnostic checks and t-test scores in section 2.3.2 which are superior to those developed by Energeia, *and*
- **Consistency in the application of model data** – JEN's approach applies for a range of assessed costs including, for example, the volume impacts in the MDC (see section 3.4).

140. Having demonstrated the improvements in JEN's approach to benchmarking are robust, we consider these to be more fit for purpose in assessing expenditure excess than the methods adopted by Energeia and the AER.

141. Another cross-check compares the closeness of outputs from various benchmarking techniques. When comparing the outputs of JEN top-down and bottom-up benchmarking it can be observed that the variance of outcomes is not material (see Table 4–1).

Table 4–1: Comparison of benchmark methods - total expenditure ($, nominal)

Approach Type	2014	2015	Total
Totex - Top-down benchmarking (see B1)	38,614,508	25,497,281	64,111,789
Totex – Bottom-up benchmarking (see B2)	36,732,272	25,045,262	61,777,534
Variance ($)			2,334,255
Variance (%)			3.8%

Source: JEN analysis

142. Given the results of the bottom-up and top-down approach are with 3.8% of each other, confidence can be gained in the veracity of each approach.

4.2 ASSESSMENT OF BENCHMARKING TECHNIQUES

143. Having identified two separate benchmarking techniques (bottom-up and top –down) it begs the question which method should be employed to construct a BEE and therefore how much of JEN's expenditure excess should be recoverable through the transition charge? To address this question the strengths and weakness of each should be considered; these are outlined in Table 4–2 below.

Table 4–2: Comparison of Top-down versus Bottom-up benchmarking techniques

Considerations	Top-down	Bottom-up
Robustness of model inputs	Drawn from publicly available information, and based on actual revealed costs	Judgement and substitutions were made to input data, for example, Energeia drew data relating to wage growth from the ABS for electricians rather than the actual lesser qualified meter installers which the distributors were actually paying for.
Allowing for exogenous factors affecting entire market	Yes – as, comparison across all businesses facing similar market conditions	No – comparison against "market rates" for similarly skilled employees (who were, in fact, supplying services into a very different market, i.e.,. meter installation services versus general services provided by registered electrical contractors)
Limitations of methodology[73]	Address the limitations of data, knowledge and time by incorporating environmental factors that are otherwise not known (to the extent that these factors can be normalised); this approach relies on the market aggregating and informing the models.	Presumes all environmental factors are wholly known, understood and measurable and that these factors are built into the models. This approach presumes the model has better knowledge about a market than the market itself; this is flawed as individuals only understand small bits of the total information.

Source: JEN analysis

144. From the analysis outlined in Table 4–2 it can be observed that both top-down and bottom-up approaches have some deficiencies.

[73] Hayek, F., *The Use of Knowledge in Society, American Economic Review*, 1945, XXXV, no. 4, 519-530.

4.3 MODEL SELECTION

145. The primary method to assess benchmark costs under the AMIOIC is to assess cost across the roll-out period, not necessarily within a given year (clause 5I.8A). The top-down method outlined in section 2 addresses the efficiency of costs across the initial regulatory period by employing benchmark techniques that look at data for the initial regulatory period and creates a way to apply that efficiency adjustment to 2014 and, if necessary, 2015. Given this method more closely aligns to the intent of the AMIOIC, a higher weight should be placed on this method for considering the efficiency of expenditure.

146. Despite this, JEN proposes to average the inputs from a range of benchmarking methods to create a robust single BEE. The technique of averaging data has been adopted previously by the AER in many of their decisions. For example:

- the AER has adopted a simple average of the Bloomberg and RBA curves to estimate the prevailing cost of debt [74]
- the AER adopted a simple average of labour cost escalators from Deloitte Access Economics and BIS Shrapnel.[75]

147. Similarly, the Australian Competition Tribunal (**Tribunal**) has also advocated averaging of data.[76]

148. In proposing averaging JEN considers that overcoming the biases in any one approach are more important, on this occasion, than the clear weight of evidence favouring the top-down approach.

4.4 ASSESSMENT OF MAIN CATEGORIES BETWEEN METHODS

4.4.1 VARIABLE CAPITAL EXPENDITURE AND METER INSTALLATION COSTS

149. Variable capital expenditure in the top-down benchmarking correlates with two key cost categories in the bottom-up benchmarking; these are (i) meter installation and (ii) meter purchase costs. Given meter purchase costs are efficient, compared to BEE (see section 3.3.2) the real comparison for efficiency is between variable capital expenditure and meter installation capital expenditure.

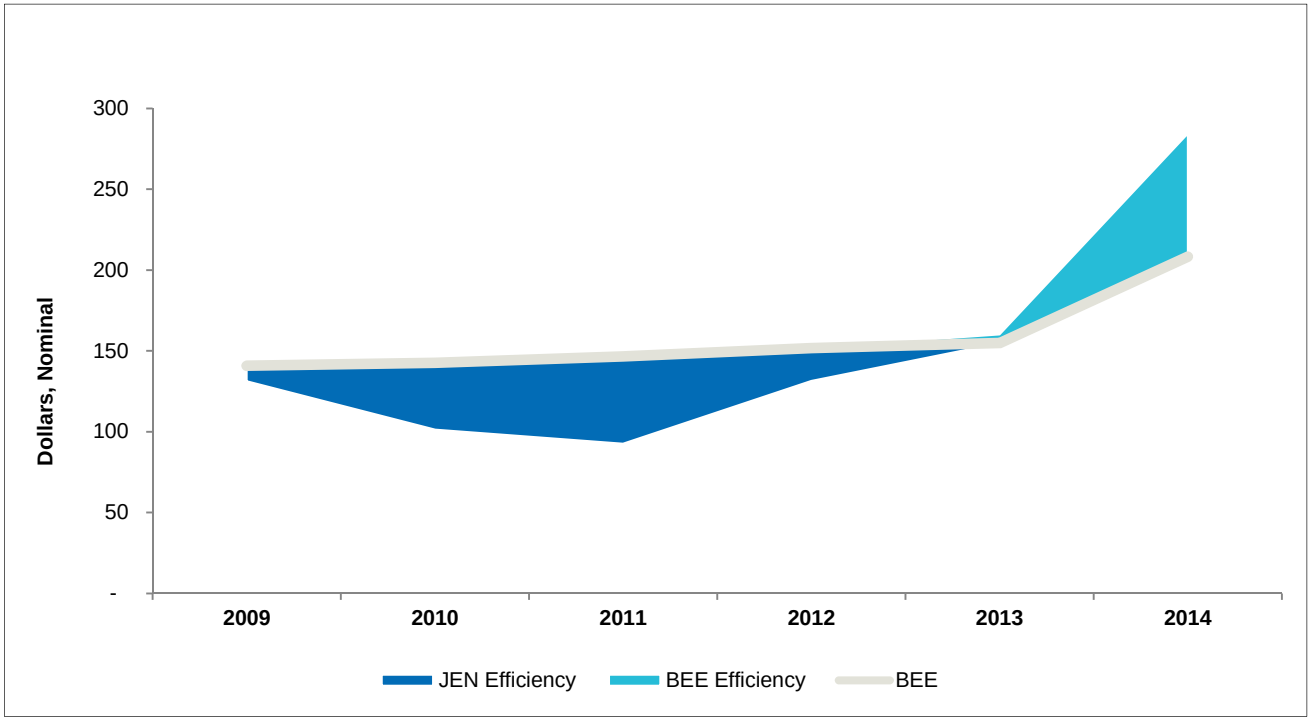
150. Implicit in the top-down benchmarking is the weighting of variable capital expenditure across the initial regulatory period. As can be observed in the Figure 4–1, the low unit rates in the early years of the roll-out are below the BEE and acknowledges the higher price in the latter period is above the BEE.

74 AER, *Final Decision, Jemena distribution determination 2016 to 2020, Attachment 3.*

75 AER, *Final Decision, Jemena distribution determination 2016 to 2020, Attachment 7*, Pg. 7-51.

76 *ActewAGL Distribution [2010] ACompT 4*, para [78].

Figure 4–1: Meter installation costs per unit over the initial regulatory period ($, nominal)



Source: JEN analysis

151. Whilst it is not intended by JEN to incur such high costs in 2014 it does show the variable portion of the program was delivered efficiently.

4.4.2 OPERATING EXPENDITURE

152. To account for the change to the AMIOIC that prevent recovering MDC expenditure from 1 April 2015 onwards, it is appropriate to assess and, if necessary, make adjustments to the expenditure sought to be recovered through the transition charges. Given the treatment of MDC under the AMIOIC is the only change related operating expenditure, the review is complete.

153. Having identified the adjustment to MDC expenditure it is identified that operating expenditure using both the top down and bottom up techniques in 2014 and 2015 are similar as outlined in Table 4–3.

Table 4–3: Comparison of benchmark methods - operating expenditure ($, nominal)

Approach Type	2014	2015	Total
Operating expenditure - Top-down benchmarking (see B1)	21,141,436	18,281,269	39,422,704
Operating expenditure – Bottom-up benchmarking (see B2)	21,199,797	17,829,250	39,029,047
Variance ($)			393,657
Variance (%)			1.0%

Source: JEN Analysis

154. With such similar outcomes, each benchmarking technique verifies the findings of the other. Given the closeness in outcomes, the review of operating expenditure is satisfied, it also supports the approach adopted in the review of the 2013 expenditure excess to only review the 'high vale, high risk' items.

4.4.3 CONCLUSION

155. As there is a clear rationale for the differences in the benchmark variance, further confidence is gained in the techniques proposed in this application making the modelling in this application fit for purpose.

4.5 FINAL MODEL ADJUSTMENTS

156. The final model adjustments, taking into account both top-down adjustments (see Appendix B1) and bottom up benchmarking (see Appendix B2) methods by averaging, are outlined in Appendix B3.

5. TRUE-UP

Key Messages

- JEN accepts the approach contained in the draft decision to adjust the difference between estimated and actual MAB at the end of 2015.
- JEN accepts the approach to recover the difference between estimated and actual MAB at the end of 2015 in inherent in the *type 5, 6 and smart metering* charges for the 2016-20 period.
- JEN proposes to smooth the effects of the transition charges over the period 2018 o 2020 to mitigate against bill shock.

5.1 TRUE-UP INITIAL METERING ASSET BASE

5.1.1 ESTIMATE VS ACTUAL METERING ASSET BASE

157. JEN recognises that a true-up is required for the difference between actual and estimated MAB at the end of 2015 as the economic regulation transitions from the AMIOIC to the NER. This is also in accordance with the AMIOIC requirement outlined in cl 5L.7 where a distributors *initial metering asset base* is lower than the MAB which was adopted by the AER when making a determination under the NER for the 2016-20 regulatory control period.

158. JEN accepts the method adopted in the draft decision to true-up the MAB.

159. Given the approach undertaken, there is no need to adjust the opening MAB value in the 2021-25 regulatory control period for the end of initial regulatory period actual to estimate variance as is usually the case when using the RAB roll-forward model.

5.1.2 TRUEING UP TIME VALUE OF MONEY FOR EXPENDITURE DISALLOWANCE

160. The transition model expresses true-up amounts in 2009 dollar terms - to incorporate the transition charge into the *type 5, 6 and smart metering* charges amounts in 2009 dollar terms must be brought forward into current dollar terms. Applying the nominal Weighted Average Cost of Capital (**WACC**) to the amount is the appropriate method to adjust the dollar base given this is the allowed rate of return on invested funds.

161. JEN accepts the method adopted in the draft decision to adjust for the time value of money in Net Present Value terms over the 2016-20 EDPR period, again noting that there is no need to adjust the opening MAB value in the 2021-25 regulatory control period for the end of initial regulatory period actual to estimate variance as is usually the case when using the RAB roll-forward model.

5.2 REFUNDING THE TRANSITION CHARGE TO CUSTOMERS

162. Having identified a transition charge to be refunded to customers, and consistent with the AER's approach outlined in the draft decision, JEN proposes to refund this amount via the metering price control formula of *type 5, 6 and smart metering* charges.

163. JEN is proposing to use the rate-of-return to update the transition charge into current dollar terms as required by the AMIOIC (clause 5L.5(aa)(ii)) and consistent with the approach outlined in the 2016-20 EDPR whereby the annual rate of return is adjusted for the trailing cost of debt. As a consequence of this method—and also because the consumer price index for future regulatory years is not known at the time of making this application—the final transition charge will be reported as a part of the annual charges applications.

164. To the extent data is known at the time of making this application or can be reasonably estimated, the rates of return applicable to this application are outlined in Table 5–1.

Table 5–1: Annual true-up rate-of-return (%, nominal)

Year	Status	Rate of return
2016	Actual[1]	5.52%
2017	Actual[2]	4.96%
2018	Estimated[3]	6.37%
2019	Estimated[3]	6.37%
2020	Estimated[3]	6.37%

(1) Sourced from the draft decision transition application model.

(2) Amended the Vanilla WACC based on changes to the return on debt of 5.52% as notified in correspondence from the AER 21 September 2016.

(3) Estimate sourced from the AER's draft decision model, At the time of submitting the future pricing proposals during the 2016 to 2020 EDPR revenue control period the Vanilla WACC will be updated once return of debt information becomes available.

5.3 SMOOTH TRANSITION CHARGE

165. JEN notes that the transition charge is rather substantial and would create price volatility over the 2016-20 regulatory control period if rolled into the 2018 year alone (price volatility being downward movements in 2018 as well as a rebound amount in 2019). To reduce price shock for our customers, JEN proposes to smooth the inclusion of the transition charge over the 2018 to 2020 period. To give effect to this proposal, we have augmented the transition application model to produce the transition charges as outlined in Table 5–2.

Table 5–2: Smoothed transition adjustment ($' 000)

Phased Transitional Adjustment	2018	2019	2020	Total
Total AMI Transitional Adjustment in ($2018)	-2,558	-2,558	-2,558	-7,673
Estimated total AMI Transitional Adjustment in ($,nominal)	-2,558	-2,721	-2,894	-8,172

Source: JEN analysis

166. Similar to the recommendation in section 5.2 above we propose amending the rate of return used in the calculations as the return on debt is modified.

Appendix A
AMI MRO - Installation by geography and year

Jemena

A1. AMI MRO - INSTALLATION BY GEOGRAPHY AND YEAR

Figure A1–1: AMI Meter Installations in 2009

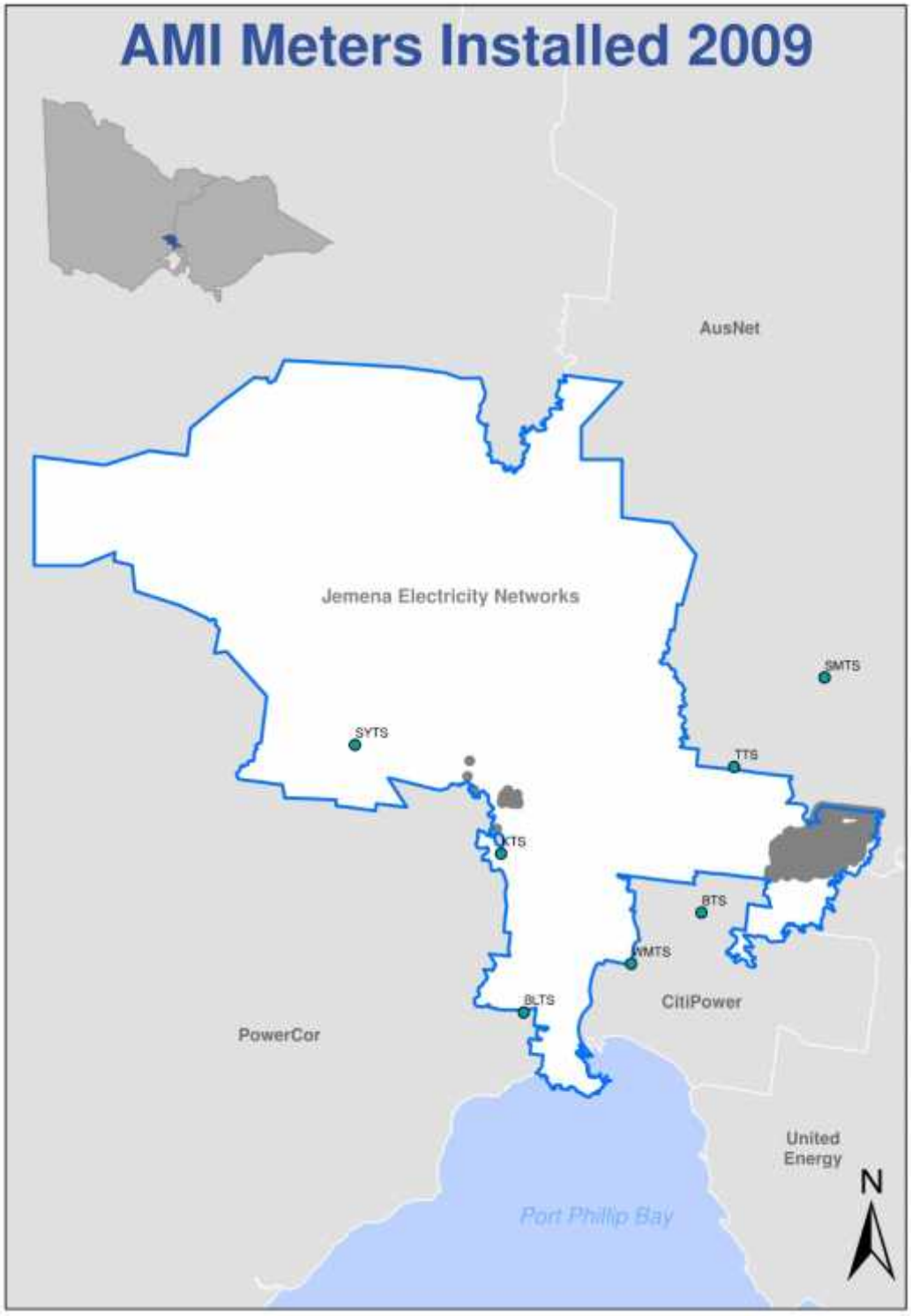


Figure A1–2: AMI Meter Installations in 2010

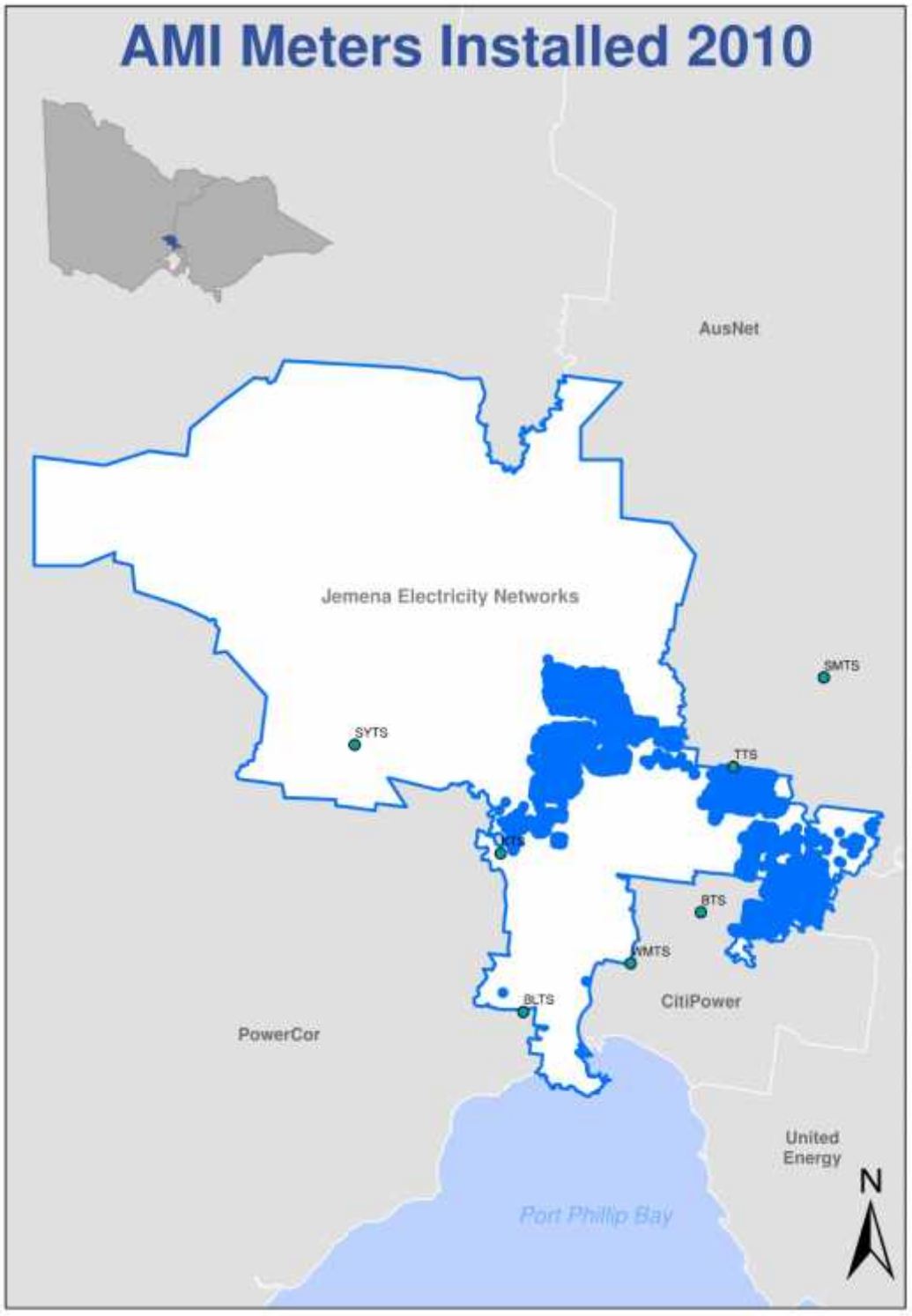


Figure A1–3: AMI Meter Installations in 2011

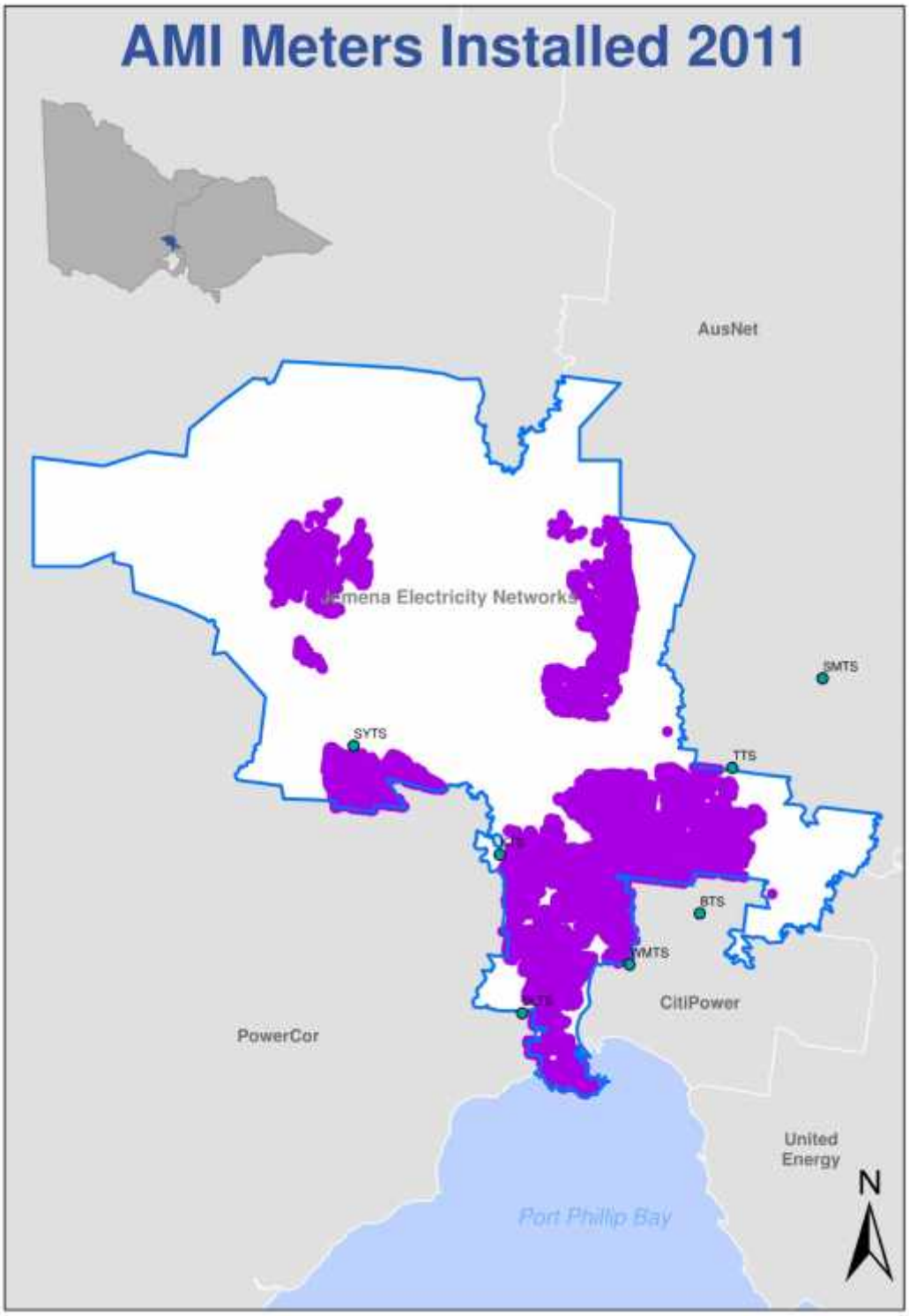


Figure A1–4: AMI Meter Installations in 2012

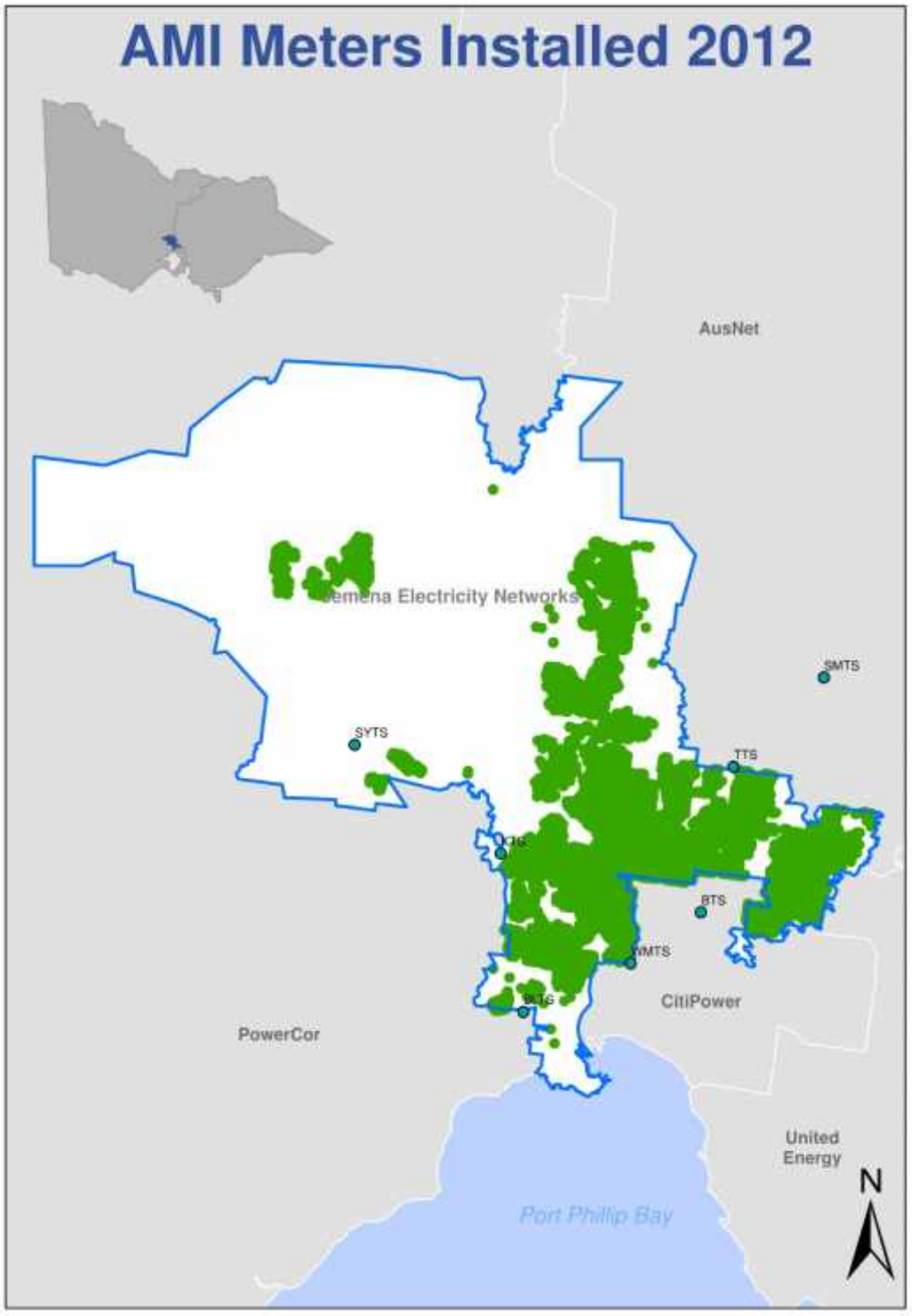


Figure A1–5: AMI Meter Installations in 2013

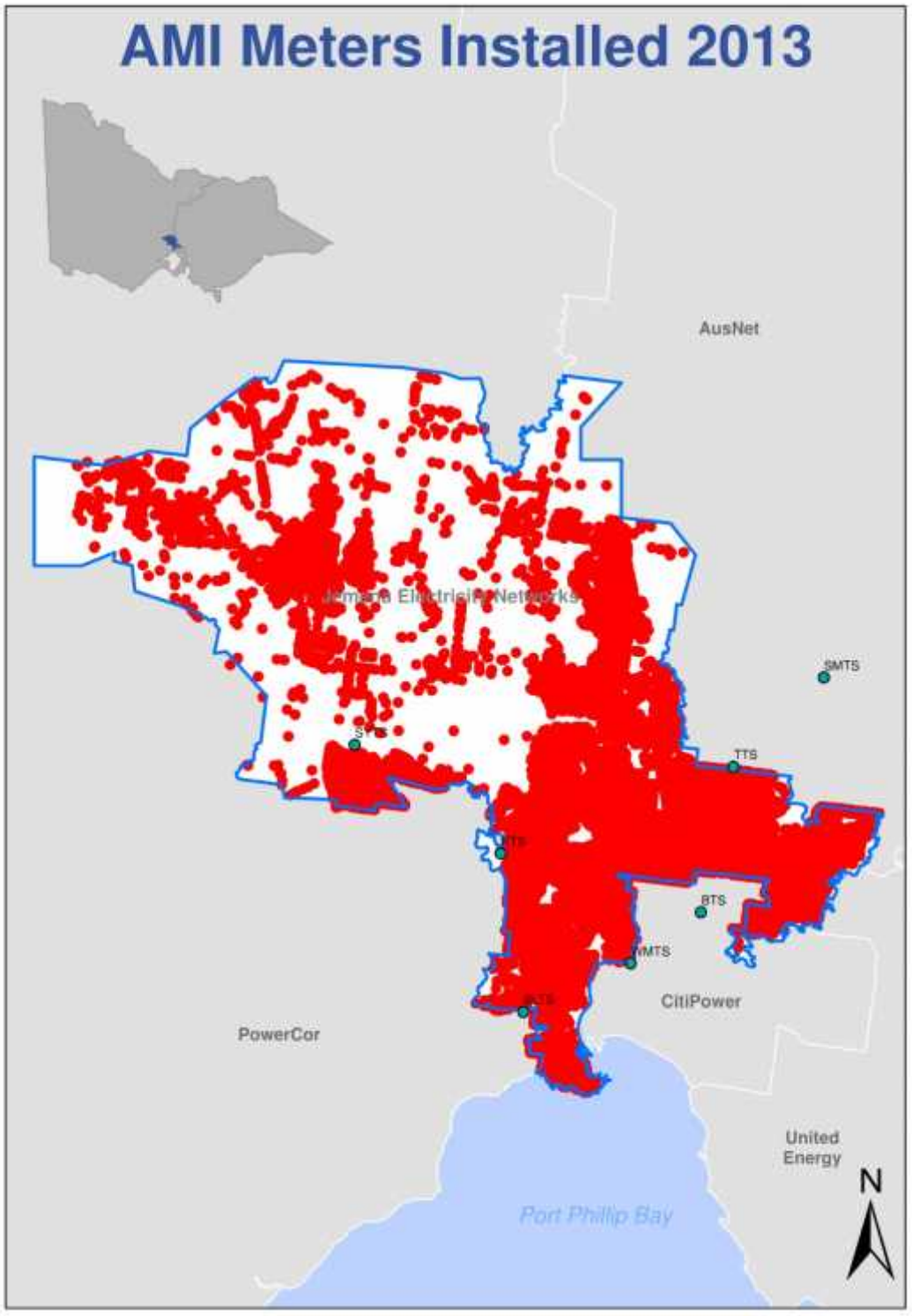


Figure A1–6: AMI Meter Installations in 2014

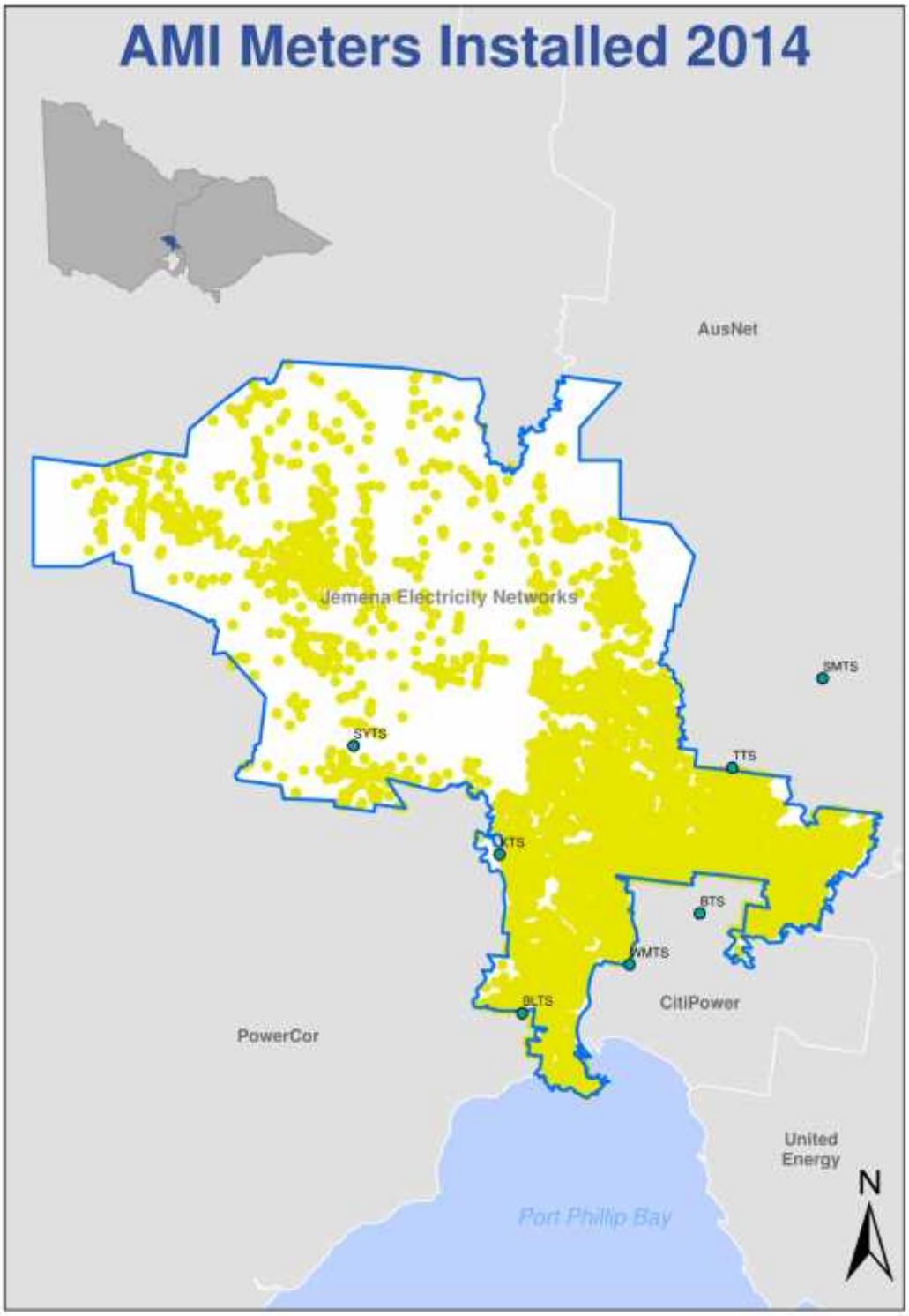
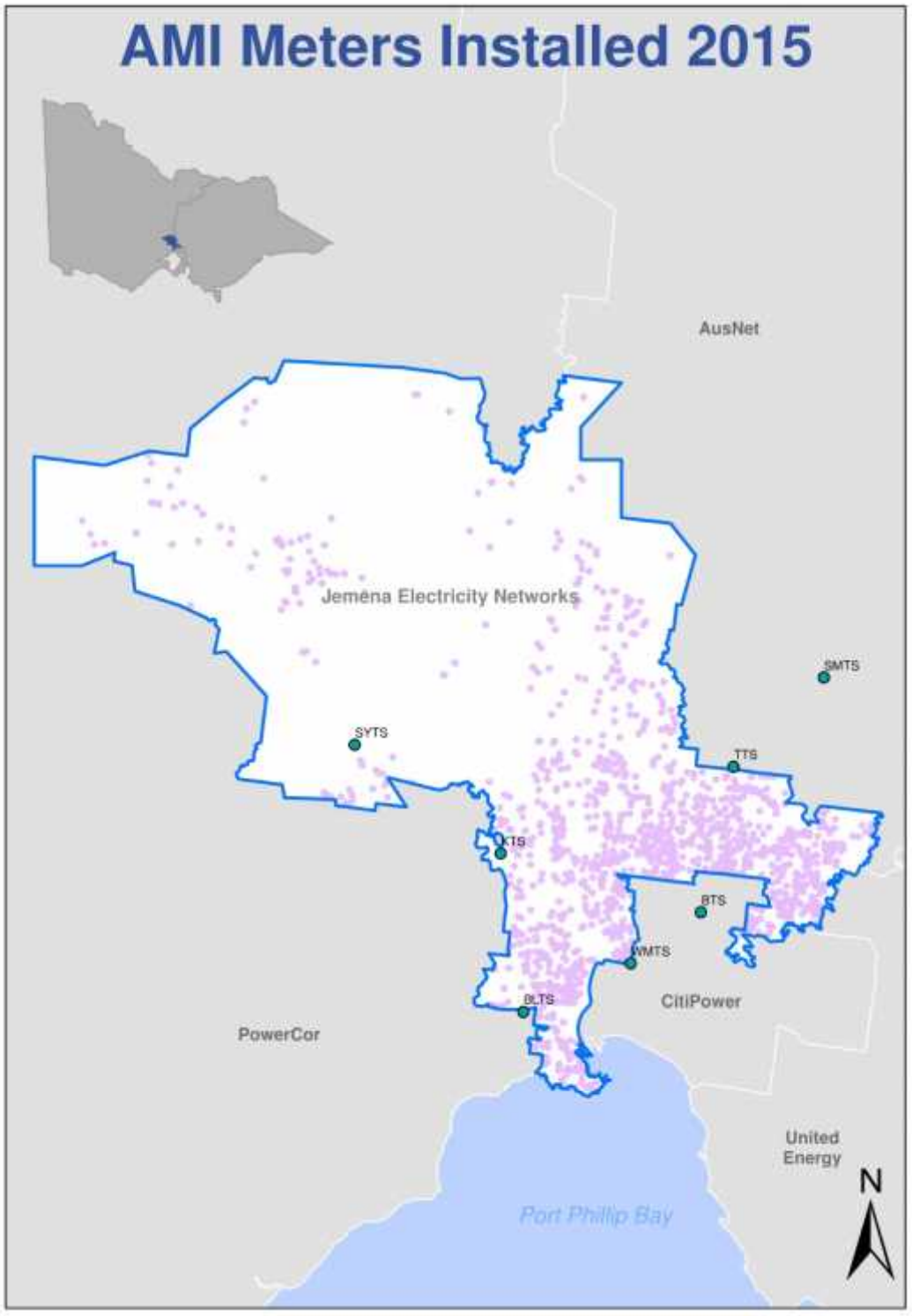


Figure A1–7: AMI Meter Installations in 2015



Appendix B
Summary of capital expenditure and operating expenditure amendments to the transition application model

Jemena

B1. TOP-DOWN BENCHMARKING MODEL ADJUSTMENTS

Cost Item	Adjustments	2014 ($, Nom)	2015 ($, Nom)
Capital expenditure			
Remotely read interval meters & transformers			
Initial application		13,336,203	253,489
Adjustments	- Meter installation (actual)	(7,420,362)	
	+ Meter installation (benchmark)	7,397,150	
	- MRO back-office (actual)(1)	(2,273,948)	
Revised application		11,039,044	253,489
Information technology			
Revised application		3,451,502	6,278,458
Communications			
Revised application		708,578	684,065
Other			
Initial application		-	-
Adjustment	+ MRO back-office (benchmark)(1)	2,273,948	-
Revised application		2,273,948	-
Total capex - revised application		**17,473,073**	**7,216,012**
Operating expenditure			
Operation and Maintenance			
Initial application		21,810,732	18,526,611
Adjustments	- Meter data collection (actual)	(1,528,454)	(806,202)
	+ Meter data collection (benchmark)	859,157	560,860
Total Opex - revised application		**21,141,436**	**18,281,269**

(1) Consistent with the approach in the draft decision, the gross cost adjustment are adjusted across categories

B2. BOTTOM-UP BENCHMARKING MODEL ADJUSTMENTS

Cost Item	Adjustments	2014 ($, Nom)	2015 ($, Nom)
Capital expenditure			
Remotely read interval meters & transformers			
Initial application		13,336,203	253,489
Adjustments	- Meter installation (actual)	(7,420,362)	
	+ Meter installation (benchmark)	5,575,274	
	- MRO back-office (actual)(1)	(2,273,948)	
Revised application		9,217,168	253,489
Information technology			
Revised application		3,451,502	6,278,458
Communications			
Revised application		708,578	684,065
Other			
Initial application		-	-
Adjustment	+ MRO back-office (benchmark)(1)	2,155,226	-
Revised application		2,155,226	-
Total capex - revised application		**15,532,475**	**7,216,012**
Operating expenditure			
Operation and Maintenance			
Initial application		21,810,732	18,526,611
Adjustments	- Meter data collection (actual)	(1,528,454)	(806,202)
	+ Meter data collection (benchmark)	917,518	108,842
Total Opex - revised application		**21,199,797**	**17,829,250**

(1) Consistent with the approach in the draft decision, the gross costs are adjusted across categories

B3. AVERAGE BENCHMARKING MODEL ADJUSTMENTS

Cost Item	Adjustments	2014 ($, Nom)	2015 ($, Nom)
Capital expenditure			
Remotely read interval meters & transformers			
Initial application		13,336,203	253,489
Adjustments	- Meter installation (actual)	(7,420,362)	
	+ Meter installation (benchmark)	6,486,212	
	- MRO back-office (actual)(1)	(2,273,948)	
Revised application		10,128,106	253,489
Information technology			
Revised application		3,451,502	6,278,458
Communications			
Revised application		708,578	684,065
Other			
Initial application		-	-
Adjustment	+ MRO back-office (benchmark)(1)	2,214,587	-
Revised application		2,214,587	-
Total capex - revised application		**16,502,774**	**7,216,012**
Operating expenditure			
Operation and Maintenance			
Initial application		21,810,732	18,526,611
Adjustments	- Meter data collection (actual)	(1,528,454)	(806,202)
	+ Meter data collection (benchmark)	888,338	334,851
Total Opex - revised application		**21,170,616**	**18,055,259**

(1) Consistent with the approach in the draft decision, the gross costs are adjusted across categories

Appendix C
Addressing concerns of the Victorian Government

Jemena

C1. ADDRESSING CONCERNS IN PUBLIC SUBMISSIONS

167. In the consultation process, the AER sought public submissions from stakeholder interested in the review of the Victorian distributor applications. One submission was received in response – from the DELWP. In that submission, the DELWP raised a number of concerns, including in relation to the initial application lodged by JEN. In the sections below we respond to each matter raised by DELWP relating to JEN.

168. The DELWP noted that "[t]he Victorian Government believes that these are important matters for the AER's consideration";[77] JEN considers each of the matters raised and believes it is appropriate to allay the concerns of the DELWP or raise further concern depending on the matter raised.

Fixed nature of metering costs

169. In its submission to the AER, the DELWP make specific mention of the fixed nature of IT and communications costs and the impact of having to recover these costs over a smaller customer base, JEN is also concerned that the AER has not addressed this important matter in the draft decision. To address this issue JEN proposes an approach that accommodates the impacts of fixed and variable expenditure as outlined above.

New connections

170. The DELWP seeks for the AER to confirm that the cost of AMI meters is not double recovered (i.e. once through the AMI charges and again through the ACS connection charges).

171. As can be seen in Attachment 10-03 of our 2016-20 EDPR ACS pricing submission,[78] and in Attachment 16 of our 2011-15 EDPR ACS submission,[79] meter costs do not form a part of our new connections charges. This clearly demonstrates that JEN does not double recover these costs.

Information Technology expenditure

172. The DELWP seeks for the AER to confirm that Victorian distributors do not recover costs for information technology expenditure through both standard control services (**SCS**) and through the AMIOIC noting that some IT systems relate to SCS but can recover those costs through the AMIOIC through specific provisions The issue raised by the DELWP is largely directed at Ausnet Services but the question is also charged to JEN.

173. As noted in Appendix B of our initial application, the amounts, including IT expenditure, are audited against the requirements of the AMIOIC, and more specifically against the Schedule 1 requirements of the order. This schedule specifies which systems can and cannot be recovered through the AMIOIC. For the avoidance of doubt, we have reconciled the amounts in our transition application against our annual RIN report (which is also audited) as outlined in footnotes to Appendix B1 and B2 of our initial application.

174. In any case, for benchmarking we have adopted the data used by Energeia thus having an agreeable base from which to develop a BEE that is acceptable to the AER, including an acceptable amount of IT expenditure.

Customer Service and project management fee

175. The DELWP seeks for the AER to consider the *customer service and project management fee* sought by JEN to be efficient.

---

77 DELWP, *Advanced metering infrastructure transition charges applications 2017*, 30 August, 2016, Pg. 2.

78 JEN, *Attachment 10-03 JEN ACS Ancillary Network Services - Cost Build Up Model, Sheet: "NC - single ph"*, 6 January, 2016

79 JEN, *A20.3 - ACS cost build-up model, Sheet: "1.1.1"*, 20 July, 2010

176. JEN's expenditure for MRO back-office of $2.274M in our initial application is above the budget allowance of $0. As noted in section 5.5 of our initial application, this expenditure was unforeseen at the time of preparing the budget submission, but was necessary to facilitate the end of the MRO program given the delays experienced.

177. Whilst the rationale for this category of expenditure remains, we have revised the amount of this expenditure downwards as outlined in section 3.3.3 of this application.

Appendix D
Exogenous factors affecting the MRO

Jemena

D1. EXOGENOUS FACTORS AFFECTING THE MRO

Date	Activity / Change / Announcement / Incident	Summary	Impact	Supporting Evidence
11 Nov 2009	AMI Victorian Auditor-General's Report released	The Victorian Auditor General released the report "Towards a 'smart grid' – the roll-out of Advanced Metering Infrastructure". It highlights, amongst other things, poor program governance and accountability, and lack of oversight and control by DPI and the government.		http://www.audit.vic.gov.au/publications/2009-10/111109-AMI-Audit-Summary.pdf
January 2010	Origin placed a smart meter charge line item on Vic customer's bills	Origin placed a smart meter charge on customers' bills and included a smart meter leaflet explaining why customers should pay. This led to an increase in customers refusing access to a meter exchange. By mid-2010, Origin had been asked to change the bill line item to "Metering Charges" and to explain the costs had been taken out of the service to property charge when this new line item appeared.		24 March 2010, Parliament Vic, Legislative Council speech: http://tex.parliament.vic.gov.au/bin/texhtmlt?form=jVicHansard.dumpall&db=hansard91&dodraft=0&speech=10771&activity=Grievances&title=Electricity:+smart+meters&date1=24&date2=March&date3=2010&query=true%0a%09and+%28+data+contains+'origin'%0a%09and+data+contains+'energy'+%29%0a%09and+%28+house+contains+'ASSEMBLY'+%29%0a

Date	Activity / Change / Announcement / Incident	Summary	Impact	Supporting Evidence
January 2010	Opposition Media Release – *Labor's Power Pricing Shocker*	Coalition announcement by Minister O'Brien MP regarding the mismanagement of AMI program.	Media attention and increase in community concern over the validity of the program	PDF of January 2010. O'Brien – Labor's power pricing shocker.pdf
22 March 2010	Moratorium to ensure smooth smart meter roll-out	The ToU Moratorium was an agreement between the Government and Distributors that prohibits customers from being compulsorily transitioned to a ToU tariff. The Moratorium was intended to ensure customers are fully aware of ToU pricing and protect potentially vulnerable customers. The ToU Moratorium had an end date of Dec 2011.	When the TOU moratorium was announced, some community members thought the AMI program halted. This lead to an increase in customers refusing installation of an AMI based on that misunderstanding.	The Age: "Plug pulled on smart meter plan" http://www.theage.com.au/victoria/plug-pulled-on-smart-meter-plan-20100322-grdc.html Michael O'Brien – Oppositional Portfolio Speech "Electricity: Smart Meters" http://www.michaelobrien.com.au/MediaCentre/PortfolioSpeeches/tabid/75/articleType/ArticleView/articleId/37/Electricity-smart-meters.aspx
Sept 2010	AGE news story - covering moratorium on ToU pricing, which charges households more during peak times, would remain until the end of current trials.	The Brumby government's troubled $2 billion smart meter roll-out has been given a ringing endorsement by an independent economic analysis, which found it to be "cost effective no matter which mix of costs and benefits are used".		http://www.theage.com.au/environment/energy-smart/smart-meters-to-save-5bn-report-20100902-14rom.html#ixzz1YjUoOjs5

Date	Activity / Change / Announcement / Incident	Summary	Impact	Supporting Evidence
27 Nov 2010	Change in State Government	The change of Government resulted in a change in Government policy with regards to the roll-out of AMI meters.		http://www.theage.com.au/environment/energy-smart/smart-meters-to-save-5bn-report-20100902-14rom.html#ixzz1YjUoOjs5
4 Jan 2011	Government Review of AMI Program	The newly elected Government stated that the meter program would be reviewed and the Auditor General's recommendations implemented, specifically commenting on program governance, customer data protection, and cost recovery.		
Early January 2011	Government announces that they have asked DBs to accept customer deferral requests until government AMI review completed	Premier Ted Baillieu's comments in the media notify community members that deferral requests are likely to be accepted by distribution businesses	This contributed to 322 refusals in January, 1651 in the first quarter of 2011 and a total of over 26,000 in 2011.	
22 January 2011	Smart Meter Safety Incident	On 22 January 2011 an incident occurred in which a woman received an electric shock from an external water tap after an advanced meter had been incorrectly installed.	While this is not an external event this incident triggered an Energy Safe Victoria Safety Review. This incident also generated considerable media attention, during which two predominant safety concerns were raised in the community: Are AMI meters being installed by unqualified people? Are AMI Program meter installation contracting practices leading to	See ESV Final Report 29 April 2011 (below)

Date	Activity / Change / Announcement / Incident	Summary	Impact	Supporting Evidence
			unsafe work practices?	
29 April 2011	ESV Safety Audit Report Released	ESV Final Report on Safety Aspects of the Victorian Advanced Metering Infrastructure (AMI) Program Meter Deployment Activities	ESV Final report found that: AMI Program meters are being installed by appropriately qualified people The distribution businesses AMI Program meter installation activities are being performed safely. The program electrical safety can be improved with change the supervisory and audit arrangements	ESV Final Report on Safety Aspects of the Victorian Advanced Metering Infrastructure (AMI) Program Meter Deployment Activities http://www.esv.vic.gov.au/Portals/0/ESV%20AMI%20Program%20Safety%20Review%20Final%20Report%20-%2020110429.pdf
7 and 8 April 2011	Herald Sun media coverage on smart meter	Highlighting how some Victorians appear to be experiencing power bill hikes of up to $100 as figures reveal the true cost of the bungled "smart meters" program.	Increase in media comment and coverage on costs and increase in customer resistance due to concern their bills will increase due to smart meter.	**Thursday 7 April: Herald Sun:** Smart Bomb: Victorians face power bill hikes of up to $100 as figures reveal the true cost of the bungled "smart meters" program. **Fri 8 April: Herald Sun :** *We're Paying Twice:* Victorians will keep paying for old electricity meters long after they have been replaced with "smart" meters. *Cash-22 situation is the result of bills and not-so-smart meters:* For several months I paid $90 a week to bring a $1000 electricity bill under control. *Hot Topic:* Smart meters have Victorians smarting over cost blowouts, judging by comments posted on heraldsun.com. *Your Say:* We will all pay for smart bungle revelations that the smart meter project will cost up to $2.3 billion confirm another shocking legacy of the former Brumby

Date	Activity / Change / Announcement / Incident	Summary	Impact	Supporting Evidence
				government.
May 2011	The State Government welcomes the AER's decision to reject SP AusNet proposal to increase AMI charges.	The AER's decision, as well as the Government's comments of support, received considerable media coverage. The ACA program resulted in a spike in complaints and refusals.	This contributed to 1153 refusal requests for the month of May (up from 251 in the previous month).	A Current Affair (ACA) program on the 21st of May highlights community concern and opposition to smart meters (including lack of community consultation and perceived invasion of privacy) Copy of video file in evidence folder: Media/2011: May 2011 A_Current_Affair_1830_1829 Smart Bomb: Victorians face power bill hikes of up to $100 as figures reveal the true cost of the bungled "smart meters" program.
June 2011	On 31 May, the State Government announces a review of the AMI program, and invites public submissions and reaffirms that the program is 'optional' for residents.	The Government announcement receives widespread media coverage (including an ACA story) highlighting community and media concerns regarding safety, privacy and costs. This media coverage continued consistently throughout the month of June.	Refusals almost doubled to 2191 (from previous month of 1153, which in turn was up from 251 in the previous month)	Audio file in evidence folder: Media/2011: May 31 2011 Minister O'Brien on ABC Regional Radio Mornings_with_Joseph_Thomsen_833_833

Date	Activity / Change / Announcement / Incident	Summary	Impact	Supporting Evidence
August 2011	Channel 7 News story – option to refuse smart meter	News: Households who do not want electricity smart meters can put installation on hold until a review is completed. A consumer comments on the matter. Michael O'Brien expresses his discontent with alleged forcing of smart meters onto households. Janine Rayner from the Consumer Action Law Centre states that smart meters will be installed in every household by 2013. Jemena, United Energy and CitiPower are mentioned. SP AusNet's Joe Adamo comments.	Refusals almost double again to 4680 (from previous month of 2506	
August 2011	On 11 August, Neil Mitchell (3AW radio station) plays an audio file of Premier Baillieu saying consumers can refuse a smart meter. On 16 August, Neil Mitchell pens an opinion piece on smart meters in the Herald Sun. There is ongoing negative media coverage. **THE AGE –** Surge in Electric Hostility.	Considerable (negative) media coverage (incl. 3AW, A Current Affair, Herald Sun and The Age) of AMI complaints and concerns including lack of customer communications, health and safety, costs and installation without consent, government review and refusal option.	Refusals almost double again to 4680 (from previous month of 2506)	**Fri 12 August: Radio 3AW – Mornings with Neil Mitchell - Bill Increase/ Installation Refusal Option** *Talkback:* Mitchell speaks with a caller about his dissatisfaction with the smart meter which has been installed on his property. Caller says that he is receiving higher energy bills than he did before having the smart meter installed. Presenter expresses his disapproval of the position of the Victorian government on the issue. *Talkback:* The presenter reads out messages received from callers about smart meters. One listener discusses

Date	Activity / Change / Announcement / Incident	Summary	Impact	Supporting Evidence
				difficulties they have had in receiving their bills, while another suggests that there is a campaign to increase the number of smart meters currently being installed. *Talkback:* Caller says his electricity bills have increased since a smart meter was installed at home. He says he received two bills yesterday both over $1000, which is 60% higher than any other bill ever received. He says he was told he had to have the meter installed. Presenter plays an interview with Ted Baillieu who says it is optional to have the meter installed. **Surge in Electric Hostility** http://www.theage.com.au/victoria/surge-in-electric-hostility-20110813-1isah.html
September 2011	On 12 September there are smart meter stories on both ACA and Today Tonight	Stories highlighted customer bill concerns and Origin Energy's billing issues for customers with smart meters.	Refusals hit their highest monthly figure of 5057 (up almost 400 from August)	**A Current Affair** Channel 9: 12-Sep-11 - 18:41 News Report: Price increases in power bills has caused backlash with one family receiving a bill worth millions of dollars due to their smart meters. Origin energy is under attack with the latest round of price rises, **Today Tonight** Channel 7: 12-Sep-11 - 18:31 News Report: This report investigates one whistle-blower who claims his energy company, Origin Energy, offered to pay

Date	Activity / Change / Announcement / Incident	Summary	Impact	Supporting Evidence
				him off when he discovered that he was being systematically overcharged for electricity through his Smart Meter. NSW Energy Minister Chris Hartcher says he has sought an investigation on the case, while Independent Senator Nick Xenophon says this case has national implications. **Today Tonight** Channel 7: Sydney 12-Sep-11 – 18.35 News Report: Serious flaws affecting users with smart meters are suffering from flawed power bills. A case into a whistleblower who told his power company what he found, they offered to pay him off. The extent of errors is yet to be known as it has not been made public, however the whistleblower contacted the Electrical Trade Union and the Energy and Water Ombudsman of Victoria who assisted in clarifying that Origin Energy had made an error. Since then, the company has sent several bills with different amounts and now no longer charges the household any power costs since April 2010. Origin Energy boss Grant King has refused to comment.
October 2011	Herald Sun reveals the technology is incompatible with the $36 billion National Broadband Network. *6 October – media story in Herald*	Highlights technology doubt/concern and program costs blowouts.	Increase in community concern and doubt over the AMI program	http://www.heraldsun.com.au/news/opinion/smarter-meters-should-be-considered/story-e6frfhqo-1226159610922

Date	Activity / Change / Announcement / Incident	Summary	Impact	Supporting Evidence
	Sun resulting in more media coverage			Prompted radio media coverage on same day.
October 2011	AGE newspaper – Smart Meters Given a Fail	Story highlighting the difficulties of Victorian smart meter roll-out, cost blow out and no benefits to customers.		http://www.theage.com.au/national/smart-meters-given-a-fail-20111003-1l5eb.html#ixzz1Zj7ergtp
1 November 2011	Channel 7 News Story	Story featuring residents highlighting difficulties experienced with smart meter roll-out and higher costs, health concerns.	Increase in community concern over health, cost and privacy.	Copy of video file in evidence folder: Newscentre Transcript (JEMENA_Channel 7 Melbourne_1 11 2011) (2)
3 November 2011	ToU Moratorium Extended	The ToU moratorium extension is announced by the minister however no formal notice is provided to JEN.		
14 Dec 2011	AMI Program to Continue with changes	The Government announced that following a review of the AMI program, it will continue with improved program governance, and greater controls over cost recovery.	Jemena Customer Relations were able to more effectively respond to customer refusals by referring to this government announcement. This played a major part in meter refusals falling from 8,223 in 2011 to 2,979 in 2012.	Government announcement and media: http://news.ninemsn.com.au/national/2012/10/10/17/25/victorian-smart-meter-rollout-rolls-on
22 Dec 2011	AMI OIC Amended	Government amends the AMI Order in Council in line with the announcement on 14 December.	Customer resistance and opposition to mandate.	In evidence folder – government announcements.
Early 2012	Targeted smart meter vandalism attacks commenced in the Jemena area	Homemade acidic liquid poured on smart meters. Reported as smart meters exploding.	Increased community concern regarding smart meter safety	The Herald Sun: “Exploding smart meters are endangering householders and workers: claim” http://www.heraldsun.com.au/archive/new

Date	Activity / Change / Announcement / Incident	Summary	Impact	Supporting Evidence
				s/exploding-smart-meters-are-endangering-householders-and-workers-claim/story-fn7x8me2-1226278664780
Feb 2012	Commenced partnership with key environmental group MEFL	Supported MEFL's application for funding from the Consumer Advocacy Panel to examine customer use of Jemena's web portal (with particular focus on the retail comparator tool)	MEFL started community advocacy on behalf of Jemena and smart meters	
March 2012	Electrical Trades Union (**ETU**) protest on smart meters	ETU: ban smart meter repairs until declared safe	Increased community concern regarding smart meter safety	http://www.electricalsolutions.net.au/news/51597-ETU-ban-smart-meter-repairs-until-declared-safe
4 April 2012	Neil Mitchell (3AW) acknowledges people must accept smart meter roll-out	As one of the most high profile anti smart meter media personalities, Neil Mitchell announced that the battle against smart meters had been lost and that everyone would just have to "cop their smart meter"	This led to a considerable reduction in anti-smart meter coverage on 3AW and an ensuing reduction in meter refusals and complaints	**Audio file in evidence folder** Media/2012 Title name: 3AW radio SmartMetersEmissions3AW10Apr2012

Date	Activity / Change / Announcement / Incident	Summary	Impact	Supporting Evidence
July 2012	ESV report released Safety of Advanced Metering Infrastructure in Victoria	Report in response to community, unions and media concerns over following incidents involving smart meters in the last 6 months.	Report confirms fears of HV injection and smart meters exploding are exaggerated, and evidence of criminal damage present. No evidence has been found to support safety concerns with smart meters or installation practices	http://www.esv.vic.gov.au/Portals/0/About%20ESV/Files/whats%20new/FINAL%20ESV%20smart%20meter%20safety%20report%2031%207%2012.pdf
27 September 2012	Flexible Pricing available from Mid 2013	The Government announces that Opt-in and Opt-out variable pricing is to be introduced commencing June 2013.		
October 2012	On 22 October both the Channel 7 and Channel 9 news, as well as the Age, Herald Sun and 3AW, ran stories on how 100 smart meters have been sabotaged with a mystery liquid in Melbourne's northern and western suburbs. On 11 October there were various mentions on 3AW from callers that smart meters are impacting bills and are being overcharged ("way we are billed has changed"). Additional comments that RF is affecting their pet dog's behaviour.	The media relayed how Vic Police were hunting for the vandal who sabotaged the smart meters across Melbourne's northern and western suburbs in the past year, striking the homes of mainly elderly residents. There was continued media from 3AW listeners expressing their concerns on smart meters and the impact that they were having on their bills and other health issues at home.	This led to an increase in the number of smart meter refusals (increased by 27% on the previous month)	http://www.theage.com.au/victoria/smart meter-sabotage-led-to-stroke-20121022-2804r.html Further media transcripts in the evidence folder (Media/2012)

Date	Activity / Change / Announcement / Incident	Summary	Impact	Supporting Evidence
February 2013	There is an announcement by the Prime Minister at the COAG meeting that smart meters will not be compulsory. The AGE ran an article on the cost impacts of smart meters and growing charges. Gippsland News – covered a story on local residents' concern over health related issues due to smart meters. Today radio program on 3BA (regional radio) – smart meter concern discussion with residents in the Ballarat region opposing the State Government's compulsory policy.	The PMs comments attracted media coverage Ten TV program – The Project (7 Dec 2012) where the PM again stated that smart meters will not be made compulsory, which caused confusion with Victorian public	This state wide media coverage lead to a significant increase in the number of refusals – they tripled from the previous month. (1200 refusals in February)	The story focused on the growing costs of the smart meter technology (SP AusNet's request for further technology funding: *"SP AusNet has been blocked by the Australian Energy Regulator from hiking charges to pay for its rollout of smart meters. The AER, also criticised SP Ausnet for failing to switch to cheaper technology to avoid a blowout in costs"* Story featured a Churchill woman saying the installation of a smart meter at her home could have an adverse effect on her elderly husband's health. Radio discussion centred around smart meters and residents had signed a petition calling on the State Government not to make smart meters compulsory
May 2013	On 29 April the Geelong Advertiser ran a story: "Power Surge Fears after house fire Claims life". Jemena also commenced its mass mail out for all remaining customers to receive smart meter information packs (40 day pack) (completed by June 2013)	There were a number of local media stories on power surges causing house fires. The stories note that the fires may not be directly related to smart meters but due to previous negative media stories – anti smart meter activists were able to create concern in the community that power surges are caused by smart meters. The mass mail out would saturate the information to a larger number of customers in	The number of refusals doubled from the previous month.	

Date	Activity / Change / Announcement / Incident	Summary	Impact	Supporting Evidence
		shorter time.		
5 May 2013	Anti-Smart Meter Protest rally – Melbourne city	Stop smart meter campaign rally co-ordinated by Broadmeadows Progress Association protestors.	Promote negative smart meter messages in the community.	http://stopsmartmeters.com.au/2013/04/21/anti-smart-meter-march-5-may/
31 August 2013	Herald Sun Story - *Power company tactics reduce anti-smart meter customers to tears in rollout*	Story featuring SMART meter protestors accusing power companies of dirty tricks and disconnection threats as the state-wide roll-out continued. Anti-smart meter campaigner Sonja Rutherford said tearful customers were reporting "bullying" and "stalking" tactics. Story directly mentions Jemena and United Energy and comments from Energy Minister Kotsiras.	Increase in customer stress and anxiety, and complaints, resistance.	http://www.heraldsun.com.au/news/victoria/power-company-tactics-reduce-anti-smart-meter-customers-to-tears-in-rollout/story-fni0fit3-1226706045697
31 October 2013	Herald Sun story - customers power cut off for tampering smart meter.	A family of four has had their power disconnected over the illegal removal of a smart meter in the first case of its type in Victoria. The incident has prompted safety concerns and potential charges from the state's regulator, which has warned of electrocution risks. Energy Safe Victoria Chief Paul Fearon said meter tampering, interfering with an electricity network and unlicensed electrical work were offences		PDF of story in evidence folder Media/2013 Oct 2013 PowerCut_Herald Sun 311013

Date	Activity / Change / Announcement / Incident	Summary	Impact	Supporting Evidence
		with penalties of up to $16,000		
22 November 2013	Herald Sun story reporting a story on electricity supply charges increasing a lot and blaming smart meter program.	VICTORIAN households will be slapped with smart meter fees of up to $194 on electricity bills next year. Charges for about 1.6 million homes and small businesses are set to rise from January. But about a million customers should get a slight discount. The Australian Energy Regulator has approved 2014 charges of $115 to $194 for the most common type of meter, depending where consumers live. Homes in Melbourne's north and northwest face the biggest sting.	Increased community concern on smart meters and paying extra.	http://www.heraldsun.com.au/news/victoria/consumers-face-up-to-194-for-smart-meters/story-fni0fit3-1226766398832
10 Dec 2013	Smart Meter Installer clashes with homeowner	A Current Affair reports "Smart Meter bust up caught on camera"		http://aca.ninemsn.com.au/article/8769038/smart-meter-bust-up-caught-on-camera
December 2013	Vic Government Release of amended CROIC for AMI mandate	Minister Kotsiras advising of the continuation of the AMI roll-out into 2014.		Government Gazette – 10 December 2013 (see evidence folder under Government Announcements)

Date	Activity / Change / Announcement / Incident	Summary	Impact	Supporting Evidence
29 January 2014	Energy Minister Interview about Energy Industry Reform (3AW radio – Neil Mitchell) And announces a smart meter health and safety review.	Minister mentions the public survey conducted September 2013 to which 400 people responded and 40% complained about smart meters, particularly about RF and Health Concerns. The Minister claimed he would run an independent health/safety test on the meters	Prompted more negative media questioning safety of smart meters Promoted further media coverage.	Audio files of radio interview in evidence folder: Media/2014: file name: Kotsiras announces another smart meter Review Jan 2014(Mornings_with_Neil_Mitchell_951_950 (29Jan2014)
March 2014	Stop Smart Meter Youtube video protest on smart meters –	Coverage of two inspectors from Energy Safe Victoria [Australia] arrived at customers home to undertake investigations as to who the actual person was that removed her smart meter.	Prompted more negative media questioning safety of smart meters	Punitive Power and the 'smart meter' Tyranny part 1: https://www.youtube.com/watch?v=QVtEkwkk8Ec
February 2014	Jemena commenced a final mail out campaign to all customers that have not been visited for installation (Greenfield sites) and for all customers who had previously provided no access. This mail out also highlighted the Vic Government announcement of a potential manual meter read fee from 2015 and providing further opportunity to accept the meter.	Jemena initiative to help inform customers of final opportunity to have meter installed as part of the mass roll-out.	Increase in customer calls and	

Date	Activity / Change / Announcement / Incident	Summary	Impact	Supporting Evidence
30 July 2015	AMI OIC Amended	Government amends the AMI Order in Council to change the way cost efficiency is assessed in the ex-post review of expenditure and the deferral of 2014 expenditure review.	Changes the way management assess and recover costs.	
30 July 2016	AMI OIC Amended	Government amends the AMI Order in Council to clarify amendments made on 30 July 2015	Changes the way management assess and recover costs.	