Oakley Greenwood

AMI transition charges review

prepared for:
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DISCLAIMER

This report has been prepared in accordance with the Practice Note CM 7 of the Federal Court of Australia. Oakley Greenwood (OGW) and the individual authors of this report acknowledge that we have read, understood and complied with the Practice Note. In addition, we note that:

- The opinions expressed in this report are wholly or substantially based on the specialised knowledge of the authors, and
- The authors have made all the inquiries that we believe are desirable and appropriate, and no matters of significance that we regard as relevant have to our knowledge been omitted from this report.

DOCUMENT INFORMATION

Project	AMI transition charges review
Client	Jemena Electricity Networks
Status	Final
Report prepared by	Rohan Harris Lance Hoch
Date	2 November, 2016

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Executive Summary

Background

The Australian Energy Regulator **(AER)** is responsible for determinations under the AMI Order-in-Council (**AMIOIC**) – a regulatory instrument that determines what costs Jemena Electricity Networks (Vic) Ltd **(JEN)** will recover for AMI-related expenditure, and how that recovery should occur.

Under the AMIOIC, JEN can recover its efficient costs for the rollout, operation and maintenance of AMI services over the initial regulatory period. To ensure network businesses only recover their efficient costs, the AER undertakes an ex-post review of actual expenditure.

The actual costs that JEN incurred on AMI expenditure in CY2014 and CY2015 exceeded the budget allowance for these years; that is, JEN incurred an expenditure excess, as defined under the AMIOIC.

Despite the overspend relative to the budget allowance, JEN submitted that its expenditure was prudent and efficient, and should be allowed in full in the building blocks model used to determine the true-up amount as proposed in its transition application.

Subsequent to this, the AER made a decision[1] to exclude part of JEN's expenditure excess. In making this decision, the AER has relied on advice from consulting firm Energeia.

Objective

The purpose of this report is to provide our opinion as to:

- the robustness of the Energeia report that the AER has relied upon, including:
  - the appropriateness of the assessment criteria used by Energeia, particularly given the rules for assessment outlined in the AMIOIC, and
  - whether the Energeia report contains any methodological or calculation errors,
- an alternative framework that could be used to assess the prudency and efficiency of JEN's expenditure excess consistent with the assessment approach outlined in the AMIOIC.

Findings

Meter capex costs

Regarding the assessment of JEN's "meter capex" costs, we agree with the approach adopted by Energeia, and its recommendation to the AER.

Meter installation costs

Regarding the assessment of JEN's "meter installation" costs, we disagree with both the approach adopted by Energeia, and the results associated with adopting that approach. In our opinion:

1 AER, Draft Decision, *Advanced metering infrastructure Transition Charges Applications*, September 2016.

- Any benchmark that relates to a final rollout year that includes a material proportion of chronic no-access customers (many of which are being undertaken via appointment), needs to be normalised to account for the different meter densities of the benchmark distribution business and the distribution business being assessed, as this is an exogenous factor that will affect the underlying benchmark rates. In the case of JEN:
  - When 2014 volumes are overlaid on service territory figures (km^2)[2], we get meter density figures (meters installed per km^2) of 5.9 for JEN and 15.7[3] for UE. This means that an installer in JEN's area is installing a meter every 0.169km^2 (1/5.9) whereas, in UE's area, it is one every 0.063km^2 (1/15.7).
  - JEN's inferior meter density in 2014 is a function of it having gotten closer to completing its rollout by December 2013 as compared to UE. Put another way, to not normalise for this factor and simply rely on UE's revealed rate in 2014 would appear to perversely penalise a business that actually got closer to achieving the Government's rollout timeframe.
  - This adjustment alone would increase JEN's benchmark rate to $212.25 per meter, using Energeia's own estimate of the amount of travel time meter installers incur (15 minutes) from its previous (2015) review.[4]
- Further to the above, the benchmarks established by Energeia in its 2015 review – which it also relies upon in this review - are unreliable, and therefore should not be used in any way to form the benchmark against which JEN is assessed in this review. This is based on our:
  - Opinion that Energeia's previous assessment did not include any robust analysis or a reasoned assessment of the impact that the different operating characteristics faced by UE and JEN would have had on their respective installation rates – rather it simply "assumed" that both businesses faced the same difference in circumstances relative to those assumed in the original forecast. Thus, the starting rates derived cannot be reasonably assumed to have accounted for these differences,
  - Opinion that Energeia's previous assessment did not explicitly take into account a raft of market conditions that would have led to the market for AMI installation labour services differing from the broader market for electrical services. These include, but are not limited to, (a) the fear and intimidation that AMI installers would have faced during that part of the program, as compared to working in the conventional electrical services market (which would have increased their opportunity cost of becoming an AMI installer), and (b) the impact that higher no-access rates would have had on the ability for AMI installers to make a reasonable income, as (in almost all cases) the fewer meters an installer installs in a day, the lower their income will be. The broader electrical services market is unlikely to have been affected by such issues over the evaluation period, and everything else being equal, this would have led to a higher change in the rate of pay per meter required by AMI meter installers as compared to the change in wages paid in the broader electrical services market, and

2 Service territory size has been derived from information contained in Table 3 of the Energeia report.

3 This uses the figure reported by UE in its submission, not the number of meters used by Energeia.

4 Energeia, '*Review of Victorian Distribution Network Service Provider's Advanced Metering Infrastructure 2015 Charges Revision Applications*', November 2014, p 17.

- Observation that Energeia has itself disregarded the installation rate that it would have obtained for UE for 2014 using the methodology it used in its previous (2015) review, rather than using UE's revealed rate of $150. This is despite UE's revealed rate being 15.4% higher than Energeia's calculated "benchmark". If Energeia itself believes that the benchmark rate it established as part of the last review process is not robust enough to use for the assessment of UE's expenditure excess, it is prima facie unclear why other parts of that methodology should be assumed to be able to be relied upon for the purposes of calculating JEN's installation rate for 2014.

- Further to the above, it is our opinion:
  - 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 and would allow Energeia to make a recommendation that better aligns with the overarching objective, which is to assess whether "the expenditure excess is prudent where that expenditure excess reasonably reflects the efficient costs of a business providing the Regulated Services".
  - To this end, Energeia did not engage with the matters and information provided by JEN in relation to its market testing of its meter installation costs. If it had, it would have observed that its proposed unit rate for JEN would provide JEN with an allowance that only just covers its market-tested contract rates, which **excluded** the cost of "incremental activities of isolation ($1.37M), supervision, auditing and truck support ($0.59M), NITP program, no access and aborted job charges ($1.01M) and nonstandard works, panel replacements, rewire etc. ($0.85M)". This implies that instead of spending around $3.8m in total to address each of the above issues, a prudent and efficient service provider would have spent a paltry $187k – or 4.9% of JEN's actual expenditure – to address these issues. Given Energeia appears to have undertaken no analysis around any of these specific factors (isolation, panel replacements, etc) – in either this review or in its previous (2015) review – it is impossible to conclude that Energeia's bottom-up benchmark produces a result that is consistent with the objectives of the assessment under the AMIOIC.

Other capex costs

Regarding "other capex", in our opinion, Energeia's methodology will not result in it deriving an expenditure excess that "*reasonably reflects the efficient costs of a business providing the Regulated Services"* as it:

- Does not take account of the fixed versus variable nature of some of the costs that JEN has identified as being captured in this cost category,
- Relies on the $158 per meter installation rate calculated for JEN being accurate, which we believe is not the case, and
- Generates a variable "per install rate" for these back-office functions that would not appear to be anywhere near consistent with other decisions made by the AER on similar topics that are likely to be reasonable comparators.

Meter data collection costs

Regarding "meter data collection", in our opinion, Energeia's methodology could be adjusted to better align with the underlying requirements of the AMIOIC to identify a service provider's prudent and efficient costs. This could be achieved by applying the AER-approved unit rates for manual meter reads to all of JEN's customers who required manual meter readings in 2014 and the first quarter of 2015, not just "chronic no-access" customers. This approach would:

- Take into account the fundamentally different impact that exogenous factors appear to have had on JEN (particularly in the form of no-access rates) as compared to the "benchmark" entity, Powercor, and
- Better align with the best endeavours obligation.

1. Introduction

1.1. Background

The Australian Energy Regulator **(AER)** is responsible for determinations under the AMI Order-in-Council (**AMIOIC**) – a regulatory instrument that determines what costs Jemena Electricity Networks (Vic) Ltd **(JEN)** will recover for AMI related expenditure and how that recovery should occur.

Under the AMIOIC, JEN can recover its efficient costs for the rollout, operation and maintenance of AMI services over the initial regulatory period. To ensure network businesses only recover their efficient costs, the AER undertakes an ex-post review of actual expenditure.

The actual costs that JEN incurred on AMI expenditure in CY2014 and CY2015 exceeded the budget allowance for these years – that is, JEN incurred an expenditure excess, as defined under the AMIOIC.

Despite the overspend–relative to the budget allowance–JEN submitted that its expenditure was prudent and efficient and should be allowed in full in the building blocks model to determine the true-up amount as proposed in its transition application.

Subsequent to this, the AER has made a decision[5] to exclude part of JEN's expenditure excess. In making this decision, the AER has relied on advice from consulting firm Energeia.

1.2. Purpose of this report

The purpose of this report is to provide our opinion as to:

- the robustness of the Energeia report that the AER has relied upon, including:
  - the appropriateness of the assessment criteria used by Energeia, particularly given the rules for assessment outlined in the AMIOIC, and
  - whether the Energeia report contains any methodological or calculation errors,
- an alternative framework that could be used to assess the prudency and efficiency of JEN's expenditure excess consistent with the assessment approach outlined in the AMIOIC.

The remaining sections of this report address these issues.

1.3. Structure of this report

This report is structured as follows:

- Section 2 outlines the documents that we have reviewed when formulating our opinion;
- Section 3 discusses our understanding of the assessment criteria outlined in the AMIOIC;
- Section 4 contains our opinion as to the robustness of the Energeia report, including the methodology and modelling assumptions they have adopted; and
- Section 5 describes an alternative framework that we believe the AER could use to assess the prudency and efficiency of part of JEN's expenditure excess.

5 AER, Draft Decision, *Advanced metering infrastructure Transition Charges Applications*, September 2016.

2. Documents reviewed

The opinions expressed in this report are based on our review of the Energeia report titled *Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications,* prepared for the AER in September 2016, and an accompanying excel spreadsheet "*Energeia - 2014 and 2015 AMI excess expenditure model - September 2016*".

We have also considered a response provided by JEN to the AER titled *AMI order in council - Transition application - Response to AER questions received 4 July 2016*, which answered several questions posed to JEN by the AER about its original submission.

We have also considered:

- JEN's original submission[6],
- The AER's draft decision[7]; and
- Information contained in a previous Energeia review of JEN, United Energy (UE) and AusNet Services' expenditure excess applications[8].

3. The assessment criteria outlined in the AMIOIC

JEN has made its transition application in accordance with Clause 5L of the AMIOIC[9]. It includes amounts associated with an 'expenditure excess', as defined in Clause 5I.5 of the AMIOIC.

The AER's assessment of the prudency of any expenditure excess is guided by Clause 5I.7, which states that:

> *'Where t-1 is any other year in the initial regulatory period, the Commission may refuse to include in the building blocks an expenditure excess if the distributor has not satisfied the Commission that the expenditure excess is prudent.'*

Clause 5I.7A states that:

> *'Subject to clause 5I.7AA, for the purposes of clause 5I.7, the expenditure excess is prudent where that expenditure excess reasonably reflects the efficient costs of a business providing the Regulated Services.'*

Clause 5I.7AA states that:

> *'For the purposes of clause 5I.7 and in any case where an application pursuant to clause 5L is made, 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'*

The AER can consider a wide range of contributing factors to decide if an expenditure excess is prudent. Clause 5I.7B states that:

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6 JEN, *Advanced Metering Infrastructure, Transition application*, 31 May 2016.

7 AER, Draft Decision, *Advanced metering infrastructure Transition Charges Applications*, September 2016.

8 Energeia, *Review of Victorian Distribution Network Service Provider's Advanced Metering Infrastructure 2015 Charges Revision Applications*, November 2014.

9 Order in Council under section 15A and section 46D of Electricity Industry Act 2000, incorporating amendments up to Gazette S26, 30, July, 2015.

'For the purposes of the Commission being satisfied that the expenditure excess reasonably reflects the efficient costs:

(a) of a business providing the Regulated Services; or

(b) of a business providing the Regulated Services over the entirety of the initial regulatory period, the Commission may take into account:

(c) where the expenditure excess is a contract cost, whether the contract was let in accordance with a competitive tender process; and

(d) the matters set out in clause 5I.8.'

Clause 5I.8 states that:

'The matters that the Commission may take into account include the following:

(a) the information available to the distributor at the relevant time;

(b) the nature of the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems;

(c) the nature of the rollout obligation;

(d) the state of the technology relevant to the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems;

(e) the risks inherent in a project of the type involving the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems;

(f) the market conditions relevant to the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems;

(g) any metering regulatory obligation or requirement;

'(ga) the matters set out in clauses 5I.8B(b)(ii) and 5I.8B(c); and

(h) any other relevant matter.'

Clause 5I.8A states:

In any case where an application pursuant to clause 5L is made, the matters the Commission must also take into account include the expenditure of a benchmark efficient entity over the entirety of, or any part of, the initial regulatory period.

Clause 5I.8B states that for the purposes of clause 5I.8A:

(a) Benchmark efficient entity:

In determining what may be or is a benchmark efficient entity the Commission may have regard to (but is not limited to):

(i) meter density; and

(ii) number of meters subject to regulation under this Order.

(b) Benchmarking methods:

(i) The Commission may make use of either or both category level benchmarking and aggregated category benchmarking;

Note: See section 2.4.1 of the AER's Expenditure Forecast Assessment Guideline for Electricity Distribution, November 2013.

(ii) The Commission may have regard to (but is not limited to), both for the benchmark efficient entity and the distributor:

(A) capitalisation policies; and

(B) any allocation of costs between distribution services that are metering services and distribution services that are not metering services.

(c) Benchmarking:

(i) That a distributor is the only distributor that incurs particular expenditure or engages in a particular activity is not a matter, and is not to be taken as a matter, that prevents or limits the use of benchmarking;

(ii) That a benchmark efficient entity might not have incurred particular expenditure or engaged in a particular activity is not a matter, and is not to be taken as a matter, that prevents or limits benchmarking of that entity against a distributor and vice versa;

(iii) The Commission is not bound to proceed on the basis that the starting point for benchmarking is what a distributor has in fact done but may instead proceed from the starting point of what a hypothetical benchmark efficient entity would have done;

(iv) Without limiting clause 5I.8B(c)(iii), the Commission may proceed on the basis that a benchmark efficient entity's remotely read interval meters become logically converted remotely read interval meters at either or both different rates and different times from the rates and times at which the distributor's remotely read interval meters become logically converted remotely read interval meters; and

(v) The Commission may disregard (in whole or in part):

(A) expenditure with respect to Distribution IT Systems where such systems are required for all customers of a distributor and not just for distribution services that are metering services; and

(B) expenditure with respect to Distribution IT Systems where that expenditure has been or is sought to be brought into account as expenditure for the purposes of standard control services.

Note: For Distribution IT Systems, see also the scope of a distributor.

(vi) Clauses 5I.8B(c)(i)-(v) do not limit the matters that the Commission may have regard to when benchmarking.

OUR INTERPRETATION OF THE AMIOIC:

The effect of the AMIOIC would appear to be that if the AER establishes that the costs included within any expenditure excess application relate to the provision of '*Regulated Services*', the focus of any review is then on whether that expenditure excess application '*reasonably reflects the efficient costs*' of providing those services.

It is clear that the most recent changes to the AMIOIC require that the AER *must* take into account the expenditure of a '*benchmark efficient entity over the entirety of, or any part of, the initial regulatory period*'.

Over and above the need to take into account benchmarking information in its decision making, the AER *may* also take into account numerous other factors when forming their decision as to whether that expenditure excess application '*reasonably reflects the efficient costs*'. This includes whether the expenditure excess is a contract cost, as well as various other factors that would generally be reflected in the underlying supply and demand for services provided within a competitive market. For example, the *nature of the rollout obligation*, the *state of the technology*, the *risks* and the *market conditions* may all, in one way or another, affect the supply of, or demand for, services that are required by a distribution business to provide 'Regulated Services'.

4. Critique of Energeia's methodology and modelling approach

The objective of this section is to outline our opinion of the methodology and modelling approach that Energeia has adopted to assess JEN's:

- meter supply capex expenditure excess,
- meter installation capex expenditure excess,
- other capex expenditure excess, and
- meter data collection opex expenditure excess.

4.1. Meter supply capex

4.1.1. Summary of our understanding of Energeia's modelling approach and results

Energeia's modelling approach is summarised in the following statement[10]:

Based largely on Jemena's 2009-15 capex being reasonably close to the AER's approved 2009-15 budgets, which included the lowest cost metering supply unit price of $148 compared to UED's allowance of $150 ($ real 2013), Energeia concludes that Jemena's metering supply capex reflects the reasonably efficient costs of a benchmark efficient entity, being that of Jemena's 2014-15 unit prices, as approved by the AER.

10 Energeia, *'Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications',* September 2016, p 29.

In short, Energeia:

- Benchmarked unit rates, and
- Derived its conclusions based on the results of that benchmarking.

4.1.2. Our opinion on this approach

We agree with Energeia's approach to determining the prudent and efficient costs associated with this category of capex. In particular, meters are homogenous, in that their purchase costs are not materially influenced by a business' operating environment. Therefore, it is reasonable to apply a simple unit-rate benchmarking approach to this category of costs.

In addition, this outcome is further supported by the fact that JEN contracted with one company for the provision of meters for both the AMI roll-out and BAU, and that, subject to these procurement arrangements being competitive, this should produce efficient outcomes. The former was acknowledged by the AER in their Draft Determination, where the AER stated that[11]:

> *JAM [Jemena Asset Management] conducted a closed tender process, and has provided the AER with a probity report and other documentation which extensively details the process leading up to the award of the contract.*
>
> *The AER did not establish that UED's and JEN's meter supply contract was not let in accordance with a competitive tendering process.*

Taken collectively, Energeia's approach explicitly takes into account the results of benchmarking – which is consistent with the AMIOIC – whilst the result implicitly aligns with other factors described in the OIC, namely that it was a contract cost that was let through a competitive tendering process.

4.2. Meter installation capex

4.2.1. Summary of our understanding of Energeia's modelling approach and results

Based on the model that has been provided in support of Energeia's report, it appears that Energeia:

- Utilised the unit rate that it estimated for JEN ($132) and UE ($125) as part of its 2015 review, then
- Inflated both rates by a measure of "labour inflation" (3.60%) to get 2014 rates, and
- Inflated JEN's revised rate of $137 ($132*1.036) by the difference between UE's revealed (actual) rate in 2014 ($150) and the rate that Energeia benchmarked it (UE) at in its 2015 review (adjusted for labour inflation, as described above).

So in essence, JEN's unit rate is calculated as follows:

$$\left(\frac{\$150}{(\$125\times 1.036)}\right)\times\$137 = \$158$$

This rate gets multiplied by 26,782 – which is the number of meters JEN installed in 2014 – to get JEN's revised allowance of $4.2 million in nominal dollars. Energeia has accepted JEN's requested expenditure excess for 2015 (noting that the amount was immaterial).

11 AER, *Draft Determination, Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges application,* 28 July 2011, p 73.

4.2.2. Our opinion on this approach

We have several concerns with Energeia's approach. These are that it:

- Takes no account of the impacts of changes in meter density over time or in particular assessment years, in particular, the difference in meter density between UE's rollout in 2014 and JEN's rollout in 2014;
- Does not engage with, or makes no attempt to review, JEN's market tested rates in 2014;
- Implicitly relies on the accuracy of the rates it calculated as being efficient in its 2015 review, which, in our opinion, are inaccurate. This is further reinforced by the fact that Energeia chooses not to rely on the results of its 2015 review to derive UE's benchmark installation rate for 2014; and
- Does not adequately explore the differences in other operating characteristics that might result in UE not being a genuine benchmark entity against which JEN can be assessed.

These are discussed in more detail below. We finish this section with a discussion of category level benchmarking – given the importance placed on benchmarking in the AMIOIC.

Differences in the scale and meter density of UE's rollout in 2014 versus JEN's rollout in 2014

According to Energeia's spreadsheet[12], JEN installed 26,782 in 2014, whereas UE installed 111,701 meters, or 417% more meters in total according to Energeia's model, or 117,701 (439% more) according to UE's submission[13]

Energeia defines meter density as "meters per square kilometre (density)[14]". Using the overall density figures and meter numbers in Table 3 of the Energeia report, JEN and UE's service territories are calculated as being 4515km^2 and 7483km^2 respectively[15]. When 2014 volumes are overlaid on these figures we get meter density figures of 5.9 for JEN and 15.7[16] for UE. This means that an installer in JEN's area is installing a meter every 0.169km^2,(1/5.9) whereas, in UE's area, it is one every 0.063km^2 (1/15.7).

This is important, because what effectively drives Energeia's calculation of JEN's unit rate is UE's revealed unit rate in 2014, which implicitly reflects **their meter density** in that year, which is 62.3% better than JEN's (or another way of putting this is that JEN's is **266% worse than UE's 2014)**.

Meter density – which is referenced in the AMIOIC - is very important in the context of installation costs, particularly for a program that is focused on installing meters to a group of chronic "no access" customers (many via appointment) spread across an entire service territory (as compared to a "route based" rollout). This is because meter density effects the time required to travel to, and more particularly, ***between*** sites to install meters, and therefore the number of installations an installer can complete in a day.

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12 Energeia - *2014 and 2015 AMI excess expenditure model* - September 2016.

13 United Energy, *2017 AMI Transition Charge Application*, 31 May 2016, p 16.

14 Energeia, *'Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications',* September 2016, p 22.

15 Based on information from Table 3 of the Energeia report: JEN: 323,790 meters / 71.7 density = 4515km^2; UE: 669,745 meters / 89.5 density = 7483km^2.

16 This uses the figure reported by UE in its submission, not the number of meters used by Energeia.

Given an installer's required wage is denominated as a day rate (i.e., the installer needs to earn a certain amount per day to make it worthwhile for them to install meters, as compared to undertaking other types of work), the lower the number of installs they can do in a day, the higher the unit rate they must charge to earn that required daily wage.

This then begs the question – does an installer spend a material amount of their day travelling to and from sites, or is travel immaterial in the context of an installers overall use of time during the day. In its 2015 Review, Energeia assumed that the average time required to undertake an installation was 1 hour, and moreover, it assumed that in 2013,'[17] *installation once at site accounts for 45 minutes on average, reflecting difficult sites towards the end of the installation,* ***Energeia assumed the remaining time was for travel to and from site'*** [emphasis added]. Therefore, Energeia has previously drawn the conclusion that one quarter (15 minutes / 60 minutes) of the overall time spent installing meters was travel related.

In the context of 2014, if one assumes that the meters installed were evenly spread across JEN and UE's service territory, this would indicate that JEN's installers would travel 2.66 times further between meter installs than would UE's installers. If we assume that this translated into 2.66 times the amount of travel time between sites (39.9 minutes instead of 15 minutes), then this would equate to an equivalent meter installation rate of $212.25 per meter, or around 34% more than the allowance of $158.07 recommended by Energeia to the AER.

Following on from this, there are several other points to make:

- On the balance of probabilities, the above analysis may even underestimate the true cost to JEN of having to deal with this meter density issue in 2014 as compared to UE, *if* UE was still conducting some route-based rollouts. In saying this, it is noted that JEN rolled out 8.3% of its overall stock of meters in 2014[18], whereas UE rolled out 17.5% of its overall stock of meters in 2014[19]. Everything else being equal, this:
  - increases the likelihood that UE may have (although we can't say for sure) been conducting some "route based" rollout work *in conjunction* with its chronic "no access" based roll out work, thus allowing it to achieve some scale benefits from the route-based work, and
  - reduces the likelihood that JEN would have conducted any "route based" rollout work in 2014, instead it was most likely faced with rolling out most if not all these meters to a dispersed set of chronic "no access" customers (many via appointment) spread across its entire service territory.
- JEN's smaller number of meter installs in 2014, which is the driver for its lower meter density in 2014, is a function of it having got closer to completing its rollout by December 2013 as compared to UE. Put another way, for Energeia to rely on UE's revealed rate in 2014, but to not account for meter density in this calculation, would appear to perversely penalise a business that got closer to achieving the Government's rollout timeframe,

17 Energeia, '*Review of Victorian Distribution Network Service Provider's Advanced Metering Infrastructure 2015 Charges Revision Applications*', November 2014, p 17.

18 26,782 (as per spreadsheet accompanying Energeia report) / 323,790 (as per Table 3 of Energeia report).

19 117,701 (as per United Energy's submission) / 669,745 (as per Table 3 of Energeia report).

- This difference in scale is not otherwise captured in any other part of Energeia's calculation, quite simply, because the figures derived by Energeia as part of its last review (which reflect a slight difference in the rates of JEN and UE), do not, and could not, have ever accounted for the different meter densities that the two businesses would face in 2014. Rather, the objective of Energeia's 2015 review was to determine adjustments to the original rates approved by the AER "*due to key changes in labour price and travel time conditions since the December 2010*[20]", and
- Energeia, when critiquing the Huegin work states that "*we believe that JEN's consultant's approach is also deficient because it* ***did not consider meter density****, which is specifically referred to in the OIC, and which* ***may be relevant to JEN's network given its size***[21]**.** Energeia goes on to say that *"while customer density and customer scale can all be reasonably expected to represent uncontrollable cost factors, and therefore lead to acceptable variations in costs of equally efficient businesses, Energeia's analysis suggests that the magnitude of these factors cannot be robustly demonstrated. Nevertheless, there may be other, untested factors at play, Energeia therefore selected the most similar, least cost DNSP on a per meter basis as the benchmark efficient entity, consistent with OIC clause 5I.8B (UED, JEN and CP are most similar in terms of meter density and customer mix).*

  Whilst we have not reviewed the underlying analysis Energeia has undertaken to support this statement, it is self-evident that Energeia's analysis focuses on a 'static' assessment of meter density, rather than a dynamic assessment of how changes in meter density over time impacts on costs **in particular years**. More specifically, Energeia's analysis:

  - did ***not*** review the strength of the relationship between meter density and installation costs, in **the context of a "dispersed" rollout** that is focused on installing meters to a residual set of chronic no access customers **in 2014**, ***despite***
  - JEN's benchmark rate for 2014 using UE's revealed rate in that year – even though UE's rate **will have been materially influenced** by its meter density in that year.

20 Energeia, '*Review of Victorian Distribution Network Service Provider's Advanced Metering Infrastructure 2015 Charges Revision Applications*', November 2014, p 17.

21 Energeia, *'Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications',* September 2016, p 21.

OPINION:

In our opinion:

- Even assuming UE's 2014 revealed rate reflects *its* efficient costs, given *its* specific circumstances, one would expect a different, but still prudent and efficient, service provider's rate to **materially** differ to UE's revealed rate in that year, if that service provider was faced with a different meter density (meters installed per km^2) in that year.
- In particular, meter density – which is mentioned in the OIC - is likely to be even more important when:
  - the benchmark relies a single data point from a single business for a single year, and
  - the comparator's (JEN) rollout in that individual year was focused on installing meters at the premises of residual, 'chronic no access' customers, who on the balance of probabilities, are likely to be fairly evenly dispersed across its service territory.
- This, in and of itself, means that unless **UE's revealed rates are adjusted to reflect this factor, it is not likely to represent an appropriate benchmark against which to compare JEN in 2014.**
- Any benchmark that relates to a final rollout year that includes a material proportion of chronic no access customers, needs to be adjusted for the relativity of its meter density in that year to that of the subject DB, as this is an exogenous factor that will affect the underlying benchmark being assessed.

No engagement or review of JEN's market-tested rates

Following on from the above, on face value, it appears that Energeia's approach has been to place sole reliance on UE's outturn meter installation rate for 2014 (which presumably results from a competitive tender process), in lieu of placing any reliance whatsoever on the outturn rates that JEN has obtained from its own competitive tender process in that same year.

In saying this, we see nothing in Energeia's report or the accompanying spreadsheet model to suggest that it gave any consideration to the fact that JEN had market tested its rates in 2014. This is even though in its submission, JEN provided information that showed that its market tested installation rates, if applied to outturn volumes, would have led to outturn costs being consistent with actual costs (excluding several site-specific cost drivers such as isolation, supervision, auditing, and panel replacements, none of which were included in the market tested rates).

On face value, it appears that Energeia (nor the AER) engaged with JEN's discussion of its market testing of meter installation costs. This appears to be based on their interpretation of the AMIOIC that:

- they *must* take account of 'the expenditure of a benchmark efficient entity', whereas
- they *may* take into account contract costs.

There is no doubt from our reading of the AMIOIC that a key difference is the reference to *may* (contract costs) versus *must* (benchmarking) – which seems to be what Energeia has relied upon. However, in our opinion, the term "*take into account*" is also relevant. In particular, there is no absolute requirement to unilaterally use the results of any benchmarking analysis to the exclusion of any other factor mentioned in the AMIOIC, including contract costs. If that had been the intention of the AMIOIC, these clauses would have been removed altogether because they would have been redundant.

Rather, the differentiation between *may* versus *must* would appear to reflect the relative priority to be placed on different types information. That is to say, the AMIOIC would seem to place primary priority on benchmarking as the type of information to be used, though this is not to say that other types of information should be ignored, particularly where they shed useful light on the use of the benchmarking approach. In more direct terms, there is nothing in the AMIOIC that would suggest that the AER (and, by association, Energeia advising the AER) should place reliance on a benchmark simply because it is a benchmark where other factors mentioned in the AMIOIC are relevant. This is a particularly important consideration if those "other factors" would allow Energeia to make a recommendation to the AER that better aligns with the overarching objective of the review, being to assess whether "*the expenditure excess is prudent where that expenditure excess reasonably reflects the efficient costs of a business providing the Regulated Services*[22]".

In this context, based on reviewing Energeia's report, it has placed sole reliance on its "benchmark" (being UE's revealed rate in 2014). It does not appear to have reviewed JEN's contract costs for 2014 to inform its final decision (even by way of saying that they investigated it, but found it had certain flaws or deficiencies). This is concerning, given that:

- Questions were asked of JEN during the review process in relation to this issue[23], to which JEN responded, which indicates that on face value:
  - the issue was initially considered to be important enough, in the context of the expenditure excess application, to be given consideration, yet
  - it was not addressed at all in the final report – which begs the question, why not?
- Energeia has not raised any broader concerns regarding the market for meter installation services, for example, that it was not an efficient market, and therefore, the competitive procurement of meter installation services would not deliver efficient outcomes, or
- Meter installation services are *not homogenous*[24], and therefore the costs of providing these services **will, both over the life of the program and in particular years,** be influenced by a business' specific operating characteristics. Everything else being equal, this:
  - increases the complexity of deriving an appropriate benchmark for this service (i.e., one that accurately normalises for these factors), and

22 Clause 5I.7A.

23 JEN, *AMI order in council - Transition application - Response to AER questions*, 4 July 2016, question 5.

24 For example, as described earlier, scale and meter density effects travel time, particular where the rollout is focused on chronic no access customers, which effects unit rates. This is without even mentioning other operating characteristics such as the mix of installs, different level of no access/aborts, different proportions of installs requiring isolations, and different proportions of installs requiring panel replacements.

- thereby also increases the likelihood that market rates – generated through a competitive tendering process by the specific business being reviewed – will be a more accurate reflection of the efficient costs of providing those services.

Given that Energeia has not mentioned undertaking any such analysis in its report, it would appear that Energeia may not have properly engaged with the matters and information set out in JEN's submission as they relate to its excess installation expenditure. Instead, it has relied only on what we believe to be inappropriate bottom-up benchmark.

To this end, if Energeia had engaged with the matters and information provided by JEN, it would have observed that its proposed unit rate for JEN would provide JEN with an allowance that only just covers its market-tested contract rates, which **excluded** the cost of[25]:

- "*incremental activities of isolation ($1.37M),*
- *supervision, auditing and truck support ($0.59M),*
- *NITP program, no access and aborted job charges ($1.01M) and*
- *nonstandard works, panel replacements, rewire etc. ($0.85M)*".

Put another way, Energeia's methodology implies that instead of spending around $3.8m in total to address each of the above issues, a prudent and efficient service provider would have spent a paltry $187k – or 4.9% of JEN's actual expenditure – to address these issues. Given Energeia appears to have undertaken no analysis around any of these specific factors (isolation, panel replacements, etc), it is impossible to conclude that Energeia's bottom-up benchmark produces a result that is consistent with the objectives of the assessment, which is to assess whether "*the expenditure excess is prudent where that expenditure excess reasonably reflects the efficient costs of a business providing the Regulated Services*[26]".

25 JEN, *Advanced Metering Infrastructure, Transition application*, 31 May 2016, p 23.

26 Clause 5I.7A.

OPINION:

In our opinion:

- There is no requirement to use the results of any benchmarking analysis to the exclusion any other factor mentioned in the OIC, 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* would 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 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 and would allow Energeia to make a recommendation that better aligns with the overarching objective, being to assess whether *"the expenditure excess is prudent where that expenditure excess reasonably reflects the efficient costs of a business providing the Regulated Services*".
- Energeia's results imply that instead of spending around $3.8m in total to address incremental activities such as isolation etc, JEN should have spent $187k – or only 4.9% of its actual expenditure. Given Energeia appears to have undertaken no analysis around any of these factors (isolation, panel replacements, etc), it is impossible to draw the conclusion that Energeia's bottom-up benchmark produces results that are consistent with the objectives of this review.

Incorrect derivation of the original benchmark

As explained earlier, one component of the Energeia methodology involves establishing the starting unit rates for JEN and UE for 2013. This, in theory, establishes the underlying difference between the two businesses (in terms of meter installation costs).

To do this, Energeia has utilised the unit rates that it estimated for both JEN ($132) and UE ($125) as part of its 2015 review.

Whilst it is not the purpose of this report to provide a complete critique of Energeia's 2015 report, we have reviewed certain aspects of that report that relate to the derivation of these particular meter installation unit rates.

In that review, Energeia's approach was to determine adjustments to the original rates approved by the AER "*due to key changes in labour price and travel time conditions since December 2010*[27]".

Energeia's approach appears to have:

- Taken the AER's original approved rates as being a perfectly accurate forecast of the unit rates that both UE and JEN would have incurred, given their unique and differing operating conditions, and given forecast labour costs and travel time,

27 Energeia, '*Review of Victorian Distribution Network Service Provider's Advanced Metering Infrastructure 2015 Charges Revision Applications*', November 2014, p 17.

- Adjusted the original approved rates for a measure of outturn labour costs (as compared to forecast labour rates), with this based on Energeia:
  - [A] calculating the average annual percentage increase in the salaries of electricians in Victoria between 2010 and 2013 (which was sourced from Seek.com), with 2010 being chosen as the starting year because it represents the time the Subsequent Budget Applications were prepared,
  - [B] determining the percentage increase allowed for by the AER for outsourced labour in its final decision, and
  - deducting [B] from [A] to determine the percentage increase in the AMI installation labour costs that a prudent and efficient service provider might incur.
- Further adjusted the "*the travel portion of the total installation labour cost by the change in no access rates. The additional labour estimated to be required due to higher no access rates leading to greater distances between accessible sites and multiple visits was priced at the market rate for labour*[28]"
- Accepted that '*a pricing error and change in inputs assumed may be out of the control of the DNSP*[29]', but also having considered that '*because the efficient meter installation price originally determined by the AER was based on detailed analysis of the comparative efficiency at the time, i.e. benchmarking*', the impact of the change in volume mix on JEN's costs should be derived from the use of benchmarking, in this case, the impact that the change in volume mix had on UE's costs.

First and foremost, outside of the impact that no access had on JEN's installers' travel time and an uplift based on an estimate of the impact that the change in volume mix had on UE's costs (not JEN's own costs), Energeia's methodology implicitly assumes that the *original forecast approved by the AER* accounts for all the different operating characteristics that might affect UE and JEN's installation rates at that time and into the future.

In relation to the former (impact of no access on travel), Energeia's narrow focus fails to consider any additional time spent *on site* by the meter installer to establish whether the site is in fact able to be accessed or not, nor does it take into account any administrative time required to be expended by a meter installer as a result of that 'no access' event. In relation to the former, JEN states in Appendix D ('Expenditure Excess Explanation for CY2013') of their '*AMI Charges Revision Application for CY2015'* that[30]:

> *'No access and refusals' are defined as 'the number of properties which meter installers cannot gain access to (whether it be due to refused access (active) or some other type (passive)) per calendar month'*

28 Energeia, '*Review of Victorian Distribution Network Service Provider's Advanced Metering Infrastructure 2015 Charges Revision Applications*', November 2014, p 17.

29 Energeia, '*Review of Victorian Distribution Network Service Provider's Advanced Metering Infrastructure 2015 Charges Revision Applications*', November 2014, p 18.

30 Jemena, '*AMI Charges Revision Application for CY2015 - Appendix D - Expenditure Excess Explanation for CY2013*', p 16,

Our interpretation of this comment is that 'no access' can involve a customer actively refusing to allow a meter to be installed. This would indicate to us that this would necessitate some interaction between the meter installer, and the customer. At best, this may be limited to the installer exiting their work vehicle and approaching the customer's meter, with the customer then refusing access to that meter, and the meter installer moving on to their next meter installation. However, it may also involve some further interaction between the installer and the customer. Even where the interaction is passive, it is still likely to require the installer to investigate and report the cause of the no access. Either way, the impact of this would not appear to us to simply be '*travel to and from site*'; it is simply unrealistic to expect that such an event would not also necessitate some time being spent to record the event, if not in some cases to interact with the customer.

In relation to the latter (change in volume mix), it is worth noting that in 2014 JEN asked the AER[31]:

- *whether the change in volume mix apparently experienced by UED is of the same magnitude that Jemena has experienced;*
- *whether the options open to UED to limit increases in installation costs as a consequence of changes in assumed mix of volumes to $20 per site were options that were feasibly open to Jemena; and*
- *whether there are any other exogenous factors that might impact on why Jemena's efficient costs of change in volume mix might be higher than those of UED.*

Importantly, Energeia's benchmark does not appear to have been based on a detailed analysis of these matters.

We agree with JEN's observations. In fact, in the absence of answers to these questions, we have little confidence that the methodology employed by Energeia during its 2015 review would have enabled it to derive unit rates that reasonably reflect the different operating characteristics faced by UE and JEN in 2013. Furthermore, and to be clear, Energeia's benchmark rate for 2013 (as derived in its 2015 review) did not, nor was it designed to, reflect the operating characteristics encountered by UE and JEN in 2014 and 2015.

Regarding Energeia's methodology for deriving the change in labour rates, we note that:

- There are several market conditions that in our opinion would have had an impact on the provision of AMI installation services over Energeia's evaluation period and that would not have had the same impact on the broader electrical services market. For example:

31 Letter from Rob McMillan (of Jemena) to Chris Pattas (of the AER), dated 26 November 2014.

- **Fear and intimidation faced by installers:** Many AMI installers were subject to fear and intimidation from customers as a result of the work that they were undertaking as part of the, at the time, quite unpopular AMI program. These are documented quite extensively in Appendix D of JEN's Expenditure Excess Explanation for CY2013[32], and this manifested itself in many ways, including death threats and verbal harassment. On the balance of probabilities, it is our opinion that these factors would have made working as an AMI installer much less attractive to prospective employees than being employed to serve the broader market for electrical services. Thus, it is likely, everything else being equal, that AMI installers would have required higher rates of pay to fulfil those roles, as compared to Energeia's simple benchmark which was based on the rate at which electrician's wages went up over that period; and
- **Increased rates of no access:** The ability for AMI installers to make a reasonable income was directly impacted by a significant increase in the proportion of sites where AMI installers were unable to install a meter ('no access' sites), as (in almost all cases) the fewer meters an installer installed in a day, the lower their income was. The broader electrical services market is unlikely to have been affected by such issues over the evaluation period, and everything else being equal, this would have led to a higher change in the rate of pay **per meter** (i.e., per meter installation costs) being required to clear the market for AMI installation services over the evaluation period, relative to the annual wage rises required to clear the more stable electrical services market; and
- **Job tenure**: The length of job tenure in the AMI installation market is another key factor that is likely to have affected the opportunity cost of someone providing services to the AMI installation market, relative to providing services into the broader electrical services market. The AMIOIC explicitly stated that businesses must use their best endeavours to complete the AMI rollout by the end of December, 2013. Everything else being equal, a rational prospective employee would require a higher level of remuneration to undertake a job that has only a short, finite period of tenure relative to a permanent job, or even a contract job but in a market that was not expected to cease to exist within a very short period of time.

- Even if Energeia's proxy index reflected both the AMI installation market and the broader electrical services market, the index is still an 'average' of these two sub-markets. If one sub-market is growing at a higher rate than another, then the average will lie somewhere in between the two figures, but more towards the *larger sized market*, which in our opinion, would almost certainly have been the broader electrical services market.

32 JEN, *AMI Charges Revision Application for CY2015, Appendix D, Expenditure Excess Explanation for CY2013*, August 2014

OPINION:

In our opinion, the derivation of the original benchmark 2013 rates:

- Did not include any robust analysis or a reasoned assessment of the impact that the different operating characteristics faced by UE and JEN would have had on their respective installation rates – rather it simply "assumed" that both businesses faced exactly the difference in circumstances relative to those assumed in the original forecast - hence the starting rates derived cannot be reasonably assumed to have accounted for any of these differences, and
- Did not explicitly take into account a raft of market conditions that would have led to the market for AMI installation labour services differing from the broader market for electrical services.

Therefore, in our opinion, the benchmarks established by Energeia in its 2015 review are unreliable, and therefore should not be used in any way to form the benchmark against which JEN is assessed in this review.

Energeia implicitly admits that the method used to derive efficient 2014 rates from the 2013 rates may not be entirely reliable. We note that:

- In its 2015 review, Energeia calculated a benchmark installation rate for UE of $125 (for 2013).
- Then, after adjusting this rate for one year of labour escalation, Energeia determined UE's installation rate as being $130 for 2014.
- Despite these calculations, Energeia ***accepted*** UE's revealed rate of $150 as being the benchmark efficient rate for 2014, despite it being 15.4% higher than their own calculated "benchmark" rate for that year.

If the $150 is indeed to be taken as the efficient costs for 2014, then:

- the approach for adjusting UE's 2013 value (i.e., applying a measure of labour cost escalation) clearly cannot be the correct way to derive the 2014 rate, and must be ignoring certain other material factors, or
- the initial 2013 rate was incorrect in the first place.

In our view, both are likely to contribute to the error factor.

Other differences between UE and JEN explored adequately enough to establish UE as a genuine benchmark comparator in 2014

A fundamental aspect of any benchmark is that the benchmark results must reflect factors that are within the control of management. Absent this, any "benchmark" is useless, or worse still, misleading.

Earlier, we discussed the differences in meter density that would have affected JEN's outturn unit rates in 2014 relative to those revealed by UE. Over and above that difference, there are other market and operating characteristics that may have affected the two businesses differently in 2014, and therefore would have been relevant in calculating the efficient costs that each of the businesses, assuming that both acted prudently, would have incurred in order to complete the rollout in 2014. These include:

- Different mixes of installs (i.e., types of meters) in 2014;

- Different levels of no access/aborts in 2014;
- Different numbers of isolations required in 2014; and
- Different numbers of panel replacements in 2014.

Energeia's underlying methodology, which relies on UE's revealed rate and the analysis in its 2015 review, implicitly assumes that:

- its 2015 review accurately captured these differences in 2013, and
- every one of these factors remains the same in 2014 (for both JEN and UE).

We have discussed the former previously, namely that we see no evidence to suggest that Energeia has undertaken any material analysis regarding these matters, therefore it is unlikely to have reasonably accounted for the different operating characteristics faced by UE and JEN in 2013. In relation to the latter, Energeia has again, not investigated whether any differences emerged in these factors in 2014, hence it is not clear that Energeia's assumption in this regard should be accepted.

OPINION:

In our opinion, to be credible, any benchmark needs to normalise – or at least attempt to normalise - for factors that are beyond management's control and which differ between the entities being reported upon. Based on Energeia's report, it appears that Energeia have simply "assumed" that JEN and UE would have faced exactly the same operating characteristics in 2014 as were reflected in the benchmark rates calculated for each of them in 2013.

Given that operating characteristics will affect installation costs (as opposed to say meter purchases, where the product being benchmarked is fairly homogenous), assuming away any differences in operating characteristics, without any explanation or analysis, compromises the use of the benchmark.

A comment on category level benchmarks

In its report, Energeia states that its[33]:

> *"review of JEN's meter installation capex found that its overall, adjusted meter capex category benchmark was $46.9 million above UED's efficient benchmark".*

However, in other parts of its report, Energeia note that[34]:

33 Energeia, *'Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications',* September 2016, p 29.

34 Energeia, *'Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications',* September 2016, p 25.

> *Among the key limitations of category and sub-category level benchmarking is that it may not be able to account for key differences in [the] DNSP's operating environment factors. Another limitation is that it [may] not be granular enough, for example where the excess expenditure is a sub-set of the category or sub-category benchmark, for example meter reading opex within the overall opex benchmarking category. Energeia has therefore assessed selected excess expenditure below the sub-category level using a range of bottom-up benchmarks as indicated. In all cases, the sub-category unit pricing approaches resulted in more conservative benchmarks than totex, category or sub-category benchmarking approaches, which we believe highlights the value in adopting the more granular, bottom-up approach in these cases.*

As a general comment, we agree with Energeia that category and sub-category level benchmarking may not be able to account for key differences in a DNSP's operating environment factors. As we have stated previously, there are numerous operating characteristics that are likely to affect the costs of rolling out AMI meters over the life of the program. To be credible, any benchmark must make allowances for these characteristics. We will not labour these characteristics again, but they are real, and they do, as noted by Energeia, make category and sub-category benchmarking difficult - **just as they do, bottom-up benchmarking.**

In the context of this review process, category and sub-category level benchmarks will almost certainly fail to take into account:

- The impact that exogenous market and operating factors affecting the timing of the rollout had on each individual business, given how they originally proposed to complete the rollout under various assumed future conditions (that were reasonable assumptions at the time). For example:
  - it is our understanding that at the time of its 2012-2015 Budget Application, JEN had in place a contract with a single meter installation vendor (SSIS) that was expected to facilitate the efficient installation of meters, and achieve installations at a rate that was consistent with the completion of the MRO by 31 December 2013, given the market conditions that were expected to pertain at the time. In its review of the application of the competitive tender test in its Draft Determination, the AER stated that it '*did not establish that UED's and JEN's contract for the installation AMI meters during the roll-out was not let in accordance with a competitive tendering process*'[35]. Nor, at the time, did the AER express any other reservations in relation to the nature of the contract or its impact on meter installation forecasts. As exogenous factors changed, and these factors started to affect JEN's meter installation program, this single vendor strategy became unsustainable, necessitating the adoption of a number of other initiatives to ensure that JEN used its best endeavours to complete the rollout by December, 2013. If JEN had, **by chance**, adopted a multiple vendor strategy like some other service providers - even though its single vendor approach was, at the time, deemed to be a prudent and efficient approach - it is likely to have been better placed to manage the change in exogenous factors. Any *ex post* benchmarking of outturn costs needs to normalise for these types of factors.

35 AER, *Draft Determination Victorian Advanced Metering Infrastructure Review, 2012-15 budget and charges applications*, 28 July 2011, p 74.

- JEN used its best endeavours to complete the rollout by December, 2013. This left it with having to roll out an equivalent of 8.3% of its overall stock of meters in 2014[36], as compared to say UE, which had to roll out 17.5% of its overall stock of meters in 2014[37] and AusNet Services, which had to roll out 20.34% of its overall stock of meters. By getting closer to completion by the end of December 2013, JEN left itself with a lower meter density and lower scale of meters to rollout in 2014, which would, everything else being equal, impact its unit rates in 2014. Again, any *ex post* benchmarking of outturn costs needs to normalise for these types of factors, given it was driven by JEN's best endeavours obligation.

- The fixed versus variable nature of some of the costs (particularly IT and communication costs). If the fixed versus variable nature of some types of AMI-related costs are not accurately accounted for in any category-level benchmarking analysis, the results can be severely compromised, as it simply penalises those businesses that are of lower scale. Energeia's benchmarking analysis, which compares the **per meter costs** of each of the Victorian businesses (see Figure 6[38]), fails to account for the impact that the fixed versus variable nature of some costs (particularly IT and communications) is likely to have on benchmarking results.

4.3. Other Capex

4.3.1. Summary of our understanding of Energeia's modelling approach and results

Energeia, in describing its own approach, states[39]:

> *Whether or not JEN's excess expenditure in the Other capex category is efficient under the OIC therefore requires determination of the relevant efficient entity. Given the lack of comparators, Energeia has used JEN's own efficient benchmark as determined by the AER in its 2012-15 budget determination. We have adjusted the 2013 figure of $21.5 per meter ($ nominal) by 59% for unforeseeable and uncontrollable changes in no access and labour inflation determined in our 2015 review, 3.6% for 2014 labour inflation, and 15.6% for the increase in end of program meter installation costs experienced by metering capex efficient benchmark UED.*

For 2014, this translates into:

$40.20*26,782 [installation volumes] = $1.08m

where the $40.20 is based on:

$$\frac{\$158\ [\text{Energeia's proposed benchmark installation rate}]}{\$86[\text{Original AER decision in nominal}]} \times \$21.90\ [\text{AER rate, inflated to 2014}]$$

36 26,782 (as per spreadsheet accompanying Energeia report) / 323,790 (as per Table 3 of Energeia report).

37 117,701 (as per United Energy's submission) / 669,745 (as per Table 3 of Energeia report).

38 Energeia, *'Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications',* September 2016, p 23.

39 Energeia, *'Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications',* September 2016, p 30.

4.3.2. Our opinion on this approach

The term "other" costs indicates that these are costs that JEN has not been able to attribute to any of the other cost categories. That said, JEN has stated that this cost category includes[40]:

- MRO Project Management,
- MRO Customer Contact, which includes inbound and outbound MRO call centres,
- MRO Scheduling and Dispatch, which includes administering and supporting and managing the MRO, and
- MRO Data Processing, which includes the manual processing of paperwork.

Firstly, we generally agree with Energeia that other capex should be reallocated to other cost categories on a pro-rata basis to undertake category level benchmarking.

In the absence of a comparator business, Energeia has relied on JEN's original allowance, and adjusted this for a number of different factors explained in the previous section. Again, conceptually, we broadly agree with this as a starting point for assessing JEN's unit rate. However, where we disagree with Energeia's methodology is that it:

- Takes no account of the likely fixed nature of some of these costs;
- Is based on parameters that it has derived in either this report, or as part of its 2015 review, that we believe are inaccurate, and
- Did not cross-check its outturn result against other information that might have some corroborative value.

In relation to the first point, if JEN's description of the components of this cost category are correct, it is self-evident that this cost category will contain a mix of fixed and variable costs – that is, some costs will reduce proportionally with the reduced number of meters being installed (variable costs), whilst some will not reduce proportionally with the reduced number of meters being installed (fixed, or fixed over the range of meter installations being considered).

At the heart of Energeia's methodology, it effectively:

- creates a "cost per meter" for Other Capex based on the 2013 allowance ($21.90), and then
- adjusts that "cost per meter" figure for its estimate of the increase in installation costs between what was allowed for by the AER and the benchmark rate it has derived for UE, and then
- applies that adjusted "cost per meter" for Other Capex to the new, much lower volumes.

40 JEN, *Advanced Metering Infrastructure, Transition application*, 31 May 2016, pp 31-32.

The key aspect of Energeia's methodology is that it implicitly assumes that every single dollar spent on Project Management, Customer Contact, Scheduling and Dispatch, and Data Processing is perfectly variable. This is unrealistic, particularly as JEN has stated that MRO Project Management costs[41] – which will certainly not be perfectly variable - are reflected in this cost category. Everything else being equal, and taking JEN's description of costs in this cost category as a given, this component of Energeia's methodology is likely to result in it not deriving an expenditure excess that "*reasonably reflects the efficient costs of a business providing the Regulated Services*[42]".

Further to the above, we have previously noted that we believe there are material issues with the methodology Energeia has employed to determine JEN's 2014 benchmark rate of $158 per meter installation. Any change to this would materially affect the outputs using Energeia's current methodology.

Finally, notwithstanding Energeia's comment that there is a 'lack of comparators' in relation to this cost category, Energeia does not appear to have looked to other potentially relevant sources of information to inform its assessment, or to cross-check the likely accuracy of its own assessment. For example, in its most recent EDPR decision, the AER made the following observations[43]:

> *For the time taken to perform back office tasks for connection services and service truck visits, our benchmarking of other distributors indicates that the times taken are typically less than 60 minutes and in some instances less than 40 minutes. Based on our benchmarking analysis we consider Jemena's proposed back office times of 84.6 minutes for connection services and 72.7 minutes for service truck visits to perform these back office tasks is inefficient. Therefore, we have substituted in a time of 60 minutes which is the time we allowed Jemena for these tasks in our previous decision. We consider 60 minutes is a conservative estimate and will provide Jemena with a reasonable opportunity to recover at least its efficient costs.*

Whilst this may not be a perfect representation of the variable costs that underpin MRO back-office functions, it would appear on face value to be a reasonable starting comparator. Therefore, if 60 minutes is a reasonable time allowance for MRO back-office functions, then Energeia's benchmark rate implicitly assumes that these back office tasks are undertaken by a JEN staff member earning $40.2 per hour. This seems unrealistic, given that the AER's approved rate for "Back office / administration" staff is $83.57 ($2016)[44]. Even this approach assumes away the fixed cost nature of some of the costs, such as MRO Project Management costs, which, as stated previously, we believe is not a correct assumption to make.

41 In fact, all of the other cost categories nominated by JEN are likely to have people who manage those sections and systems that are used in those areas – neither of which will be variable.

42 Clause 5I.7A.

43 AER, *Preliminary Decision - Attachment 16 - Alternative control services | Jemena Preliminary decision* , October 2015, pp 16-18.

44 AER, *Final Decision, Jemena distribution determination, 2016 to 2020, Attachment 16 - Alternative control services, May 2016*, Table 16.13.

OPINION:

In our opinion, Energeia's methodology will not result in it deriving an expenditure excess that "*reasonably reflects the efficient costs of a business providing the Regulated Services"* as it:

- Does not take account of the fixed versus variable nature of some of the costs JEN is starting are being captured in this cost category,
- Relies on the $158 per meter installation rate calculated for JEN being accurate, which we believe is not the case, and
- Generates a variable "per install rate" for these back-office functions that would not appear to be consistent with other decisions made by the AER on similar topics that are likely to be reasonable comparators.

4.4. Meter Data Collection

4.4.1. Summary of our understanding of Energeia's modelling approach and results

Based on Energeia's report and the model accompanying Energeia's report, it appears that Energeia:

- Has determined the number of meter reads that relate to "*chronic access customers, of which there were 18,516 as at 1 April 2015*"[45],
- Used this as the basis for determining:
  - the number of manual meter reads in 2014 (24,688), and
  - the number of manual meter reads between 1 January 2015 and 31 March, 2015 (6172)
- Multiplied these meter reads by the manual meter reading rate ($10.88 per read) that was approved by the AER in their Determination of Advanced Metering Infrastructure 2015 revised charges[46] (converted to 2014 nominal dollars where relevant, using a 3.6% figure for labour inflation).

Other important components of Energeia's approach are that:

- Energeia has only applied the manual meter reading charge to reads up until the 1st of April, 2015, as "*from 1 April 2015, these customers were able to be charged an AER approved price for the extra manual meter reading costs*"[47], and

45 Energeia, *'Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications',* September 2016, p 30.

46 AER, *Determination Advanced Metering Infrastructure 2015 revised charges*, 12 December 2014, p 37.

47 Energeia, *'Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications',* September 2016, p 30.

- Energeia has only limited its analysis to "chronic" no access customers, and in saying so, it stated that it concludes "*that the remainder of the meter data collection excess operational expenditure is due to program delays beyond the benchmark efficient entity Powercor, and therefore inefficient*[48]".

4.4.2. Our opinion on this approach

We agree:

- Conceptually with the approach adopted by Energeia, being that the cost is a function of the volume of reads multiplied by a unit rate;
- That it should apply to meter reads only up until April 2015, after which, these incremental costs should be recovered through the manual meter charge, and
- With the implicit assumption made by Energeia that JEN's manual meter reading rate ($10.88 per read) should be assumed to cover JEN's claim for both higher manual meter reading costs and higher back office system operating costs[49], given it is clear that JEN considered that that charge "*would recover the costs of visiting the manually-read meter to read it, **and entering the collected data into JEN's computer systems***[50]" **[emphasis added]**

However, in our opinion, a drawback of the Energeia methodology is that it only applies the manual meter reading rate to the number of meter reads[51] relating to "chronic no access customers," whereas it should apply to all manual reads of meters that are eligible under the MRO program in 2014. More specifically, Energeia's view is that any amount in excess of the cost required to provide manual meter reading services to chronic no access customers is due to program delays beyond the benchmark efficient entity Powercor, and is therefore inefficient.

First and foremost, this assumption "assumes away" any difference in operating characteristics and / or the impact of exogenous factors on the timeframes required to complete the program. For example, 'no access' rates were very different between the businesses. A business like JEN, which experienced on average 24% no access in 2013 and 16% no access in 2010 (See Figure 1 below), is, everything else being equal, going to find it **much more difficult** and expensive to complete the rollout by the end of December 2013 than businesses such as Citipower/Powercor, who collectively had no access rates of 11% and 3.5%. Given that Energeia made reference to this same data during its 2015 review, it not clear why this factor wasn't given explicit consideration in Energeia's decision to accept the assumption that "*program delays beyond the benchmark efficient entity Powercor*" must automatically be considered inefficient.

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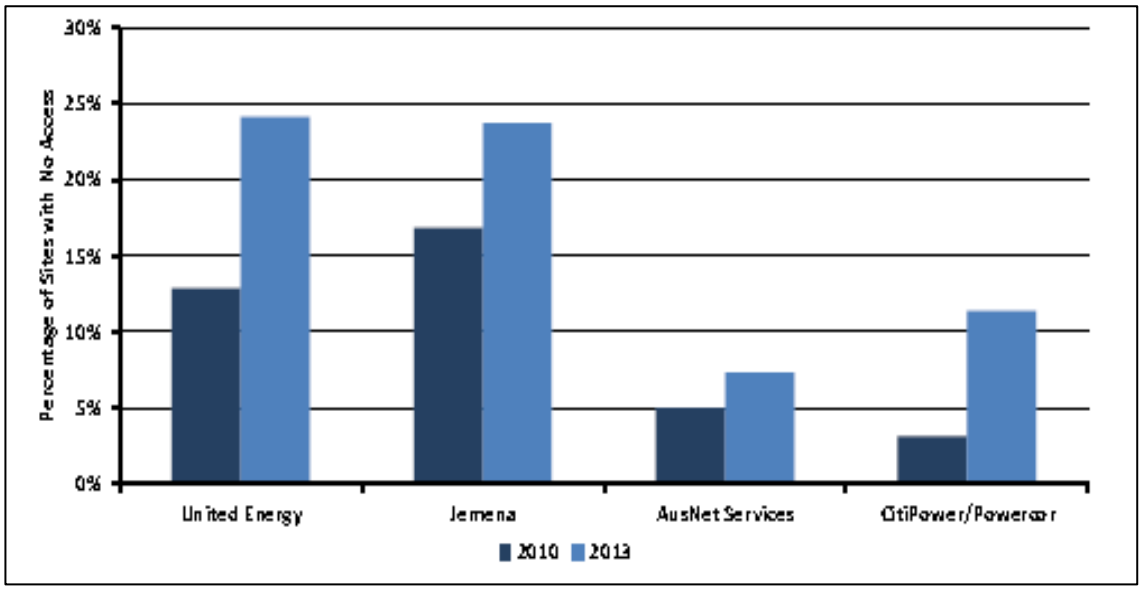
48 Energeia, *'Review of Victorian Distribution Network Service Provider's 2017 Advanced Metering Infrastructure Transition Applications',* September 2016, p 30.

49 JEN, *Advanced Metering Infrastructure, Transition application*, 31 May 2016, p 32.

50 Jemena Electricity Networks (Vic) Ltd, *AMI Charges Revision Application for CY2015, Public*, 29 August, p 8.

51 Note that whilst the Energeia report indicates that there were 18,516 'chronic no access customers as at 1 April 2015, based on information provided to the AER as part of the review process, this number appears to be the number of meter reads for chronic no access customers, not the number of customers. This is also the basis for Energeia's modelling.

Figure 1: Average 'No Access' rates for meter installation in 2010 and 2013



Source: Energeia, '*Review of Victorian Distribution Network Service Provider's Advanced Metering Infrastructure 2015 Charges Revision Applications'*, November 2014, page 17.

Furthermore, on face value, Energeia's assumption strikes us as being inconsistent with the interpretation of the "best endeavours" clause, which, as the Government itself agrees, "*is neither an unqualified obligation to achieve the outcome prescribed in the AMIOIC, nor a warranty that it will be achieved–for example, a best endeavours obligation does not require JEN to select the option that best mitigates the risk of delay, in isolation of the costs associated with implementing that option*"[52].

In particular, JEN could never have known that it was going to experience close to 25% no access rates in 2013, nor would it have known that it would have been financially penalised through a process such as this excess expenditure review, for choosing, at the time, to manage the costs of the rollout as against completing the rollout in full by December 2013. In short, 'best endeavours' needs to be considered in the context of the circumstances prevailing at the time that any decision was made (e.g., any review of JEN's decisions needs to be considered in the context of what was known, or reasonably able to be known, by JEN at the time the decision was made), and to penalise a business for simply not completing the rollout in the timeframe (which is effectively what Energeia's methodology does), without assessing whether the business has complied with its best endeavours obligation, is simply inconsistent with the intent of the underlying obligation.

52 JEN, *Advanced Metering Infrastructure, Transition application*, 31 May 2016, p 6.

OPINION:

In our opinion, Energeia's methodology could better align with the underlying requirements of the AMIOIC to identify a service provider's prudent and efficient costs.

This could be achieved by applying the AER approved unit rates for manual meter reads to all of JEN's customers who required manual meter readings in 2014 and the first quarter of 2015, not just "chronic no access" customers.

This approach would:

- Take into account the fundamentally different impact that exogenous factors appear to have had on JEN (particularly in the form of no access rates) as compared to the "benchmark" entity – Powercor, and
- Better align with the best endeavours obligation.

5. Alternative assessment framework for meter installation costs

This section describes at a high level, two alternative assessment frameworks that the AER could possibly utilise (in combination, if possible) to determine a more appropriate benchmark installation cost for JEN for 2014.

The first relies on appropriately adjusting UE's revealed rate such that it normalises for differences in meter density in 2014, and other differences in operating characteristics.

The second aspect relies on actually reviewing JEN's specific procurement arrangements in 2014, as well as the costs of undertaking other incremental activities that were not otherwise reflected in those market rates, and using this to corroborate the results of the first approach.

If done correctly, in combination, this approach would allow the AER to take into account a robust estimate of the efficient costs of providing metering installation services in 2014, whilst taking into account the different operating characteristics of JEN and UE.

5.1. Adjust the UE rate for meter density and other known operating characteristics

This approach would:

- Adjust UE's revealed rate for the impact of the different meter densities experienced by UE and JEN in 2014 – see section 4.2.2 for a discussion of the issue and a possible approach, and
- Adjust for other known differences in operating characteristics, for example, the number of isolations, panel replacements, where data is available.

In the case of the latter, this could involve:

- Determining the volumes incurred for different incremental activities by JEN and UE (e.g., the number of isolations; the number of panel replacements),
- Determining an efficient unit rate for those activities, and
- Adjusting the UE revealed rate either up or down to account for the different level of incremental services provided in 2014 that are deemed efficient.

5.2. Assess the prudency and efficiency of JEN's 2014 costs

5.2.1. Step 1 – Assess robustness of JEN's procurement approach for installation costs

The AER could first review the:

- Process that JEN adopted to establish the contract rates that underpin this expenditure excess category (e.g., were those contracts let in accordance with a competitive tendering process); and
- Underlying market for installation services, in order to establish whether or not there was any market failure that could have affected the price of installation services.

If there was a failure in the AMI installation market, or there is a reason to believe that JEN's process for establishing contract rates within that market is inconsistent with best practice regarding contract structure/process/timeframes etc, then the AER can cease any further steps in relation to this approach.

If, however, the above does not apply, then in our opinion, it is reasonable for the AER to assume that those market rates are efficient, as these two considerations reflect underlying economic theory, namely that:

- markets are the most efficient and effective means of sending appropriate price signals regarding the factors that impact upon the supply and demand for a particular good or service,[53] and
- the combination of these price signals will lead to the efficient allocation of resources across the economy (i.e., the outcomes that are produced are, by definition, efficient).

This is consistent with the AMIOIC, in that is takes into account contract costs, and more broadly, is likely to better establish whether or not that expenditure excess 'reasonably reflects the efficient costs' of a business providing regulated services.

5.2.2. Step 2 – Assess the costs of the incremental activities that drove JEN's rate higher

For each of the key incremental activities, we would suggest that the AER:

- Determine the volumes JEN undertook for each key incremental activity, and
- Assess the reasonableness of the internal process/policies adopted by JEN to determine the "need" for that service (e.g., what was the process JEN used to determine whether or not an install requires isolation?); and
- Based on the above, determine the number of incremental activities that JEN, if prudent and efficient, would have undertaken in 2014.

Following on from the above, we would then suggest that the AER:

- Determine the unit rates for each of these key incremental activities,
- Assess the reasonableness of these unit rates based on a mix of benchmarking, assessment of contractual rates and other publicly available information (e.g., isolation support involves a truck roll, the unit rate for which is likely to be reflective of other published rates for truck support); and
- Based on the above, determine the unit rate that JEN, if prudent and efficient, would have incurred in 2014.

53 Many of these factors are outlined in Clause 5I.8 of the AMIOIC.

Appendix A: Authors

A.1 Rohan Harris

Rohan Harris is an economist who has worked in the energy, water and consulting industries for more than 17 years. Rohan has significant experience in the areas of: regulatory strategy and analysis; energy and water policy; gas, electricity and water demand forecasting; tariff design; cost benefit analysis and risk management identification and quantification.

Rohan has worked at Oakley Greenwood for the last 5 years. In that time, he has advised numerous regulated electricity, gas and water businesses, policymakers and industry associations, including, but not limited to: SP AusNet (Electricity and Gas), United Energy, Multinet, Jemena (Electricity and Gas), Citipower, Powercor, the Victorian Electricity Distribution Businesses collectively, esaa, Energy Networks Association, Department of Sustainability and Environment, South East Water, Yarra Valley Water, IPART, ElectraNet, Queensland Urban Utilities, Department of State Development Business and Innovation, Ausgrid, China Light and Power (Hong Kong), Tenaga National Berhad (Malaysia), Energy Australia, Origin Energy and AGL.

Prior to working at Oakley Greenwood, Rohan was the Principal Economist at SP AusNet. There, Rohan's primary role was to lead the development of numerous aspects of SP AusNet's 2011-2015 Electricity Distribution Pricing Submission, including the sections on Operating Expenditure Forecasts, Cost Pass Through Events, Efficiency Benefit Sharing Scheme, Demand, Energy and Customer Number Forecasting, Tariffs for Standard Control Services and Tariffs for Alternative Control Services.

Prior to joining SP AusNet, Rohan was an Associate Director at consulting firm SAHA International. At SAHA, Rohan provided regulatory, commercial, policy, strategic and risk management advice to a range of customers from the Electricity, Gas, and Water industries.

Before joining SAHA, Rohan worked at South East Water for 7 years, including as Manager, Economic Regulation. Here, Rohan led both the strategic development, writing and modelling of South East Water's first regulatory submission.

A.2 Lance Hoch

Lance Hoch has over 30 years of experience as a consultant to the electricity industry and the government and regulatory agencies that are involved with it. He specialises in utility/customer interface issues and has particular expertise in demand management, energy efficiency, pricing, regulation and policy matters in the distribution and retail portions of the electricity supply chain, and has worked on projects in these areas in Australia, the US, the UK, New Zealand, the Pacific Islands, Hong Kong, Singapore, the People's Republic of China, Indonesia, Thailand, India, Sri Lanka, Saudi Arabia and the United Arab Emirates.

He has been involved in a number of the studies of the potential benefits of the deployment of interval metering, advanced metering infrastructure (AMI) and smart grid technology that have been undertaken in Australia. In these studies, he has assessed the benefits of these systems to the distribution network, the wholesale market, and consumers. He has particular expertise in the assessment of the operational benefits AMI can provide to the distribution system and has also assessed the potential for these systems to support innovative and more cost-reflective price signals, customers' reactions to and acceptance of those price signals, and their potential for assisting in increased levels of demand response that provide benefits to both the electricity system and electricity end-users.

He has provided assistance to several Australia electricity distribution companies in regulatory matters including setting or responding to pricing principles, reviewing and strengthening their energy and demand forecasting methodologies, and assessing and developing innovative tariffs.

He has considerable experience in the development of 'standard offer' retail electricity tariffs and related topics. He directed a review of the effectiveness of retail competition in Victoria for the AEMC, and has played a key role in assignments for AEMO (and its predecessor, NEMMCO), MCE, and a number of the jurisdictional electricity distribution companies and national and new entrant electricity retailers. He directed the work required to set the notified price (standard tariff) for small electricity users in Queensland for the first three years of FRC in that state, and contributed to the review and setting of regulated retail prices in two other jurisdictions.

Lance has also provided pricing advice to a number of electricity retailers and has planned and managed market surveys of competitive retail electricity market offers for residential customers for several electricity retailers and the AEMC. He has also participated in a number of distribution price determinations.

He has also participated in a number of studies that have assessed the benefits and costs of full retail contestability and the various approaches for implementing this major reform to the electricity market.

He has been involved in energy efficiency and demand management and demand response (collectively DSM) throughout his career, having designed more than 50 DSM programs for electricity utilities in the US, Australia, New Zealand and southeast Asia, and has in-depth expertise in the economic rationale for, and the design and implementation of DSM programs in both regulated and deregulated markets.