Jemena Asset Management

Response to the AER Draft Determination on the Victorian Advanced Metering Infrastructure Review

2012 – 2015 Budget and Charges Applications

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1 Overview

Jemena Electricity Networks (VIC) Ltd (**JEN**) and United Energy Distribution (**UED**), have requested that Jemena Asset Management (JAM) provide a response to the Australian Energy Regulator's (**AER**), draft determination on the budgets proposed by JEN and UED for the rollout of advanced metering infrastructure (**AMI**) for the 2012 – 2015 budget period. JEN and UED requested that JAM consider and address those parts of the AER's draft determination that deal with JAM's base costs of providing metering services for JEN and UED. JEN and UED also requested that JAM provide an amended budget for base costs as part of its response.

JAM has carefully considered the AER's draft determination and, in light of it, JAM's budget for base costs. In some cases, JAM has accepted, in part or in whole, the AER's view and has amended the budgeted costs accordingly.

In most cases, however, JAM believes that the costs originally proposed are reasonable and are necessary to deliver Regulated Services (**metering services**). In these instances, JAM has not accepted the AER's findings and has provided reasons, explanations and supporting information.

The tables below contain the original budgeted base costs proposed by JEN and UED for the relevant areas addressed in this response. The tables also contains the amended proposed budget for JEN and UED.

Where JAM makes a response (i.e. does not accept the AER's draft determination) the issue is discussed, and evidence provided, in the relevant section of the response. Each section addresses the equivalent sub section of the AER draft determination and provides a summary of JEN and UED's original proposal, the relevant findings of Impaq, the AER's draft determination and JAM's response.

In support of the JAM substantiation of costs and this response JAM has engaged two independent and credible third parties being KEMA Consulting and Deloitte Touche Tohmatsu (Deloitte), to conduct a review of JAM capital works programs and JAM Operational Expenditure respectively in relation to the VIC AMI budgets and charges applications. The following two reports are provided being:

- KEMA - The SmartNet Program – Advanced Meter Infrastructure Rollout for United Energy Distribution and Jemena Electricity Networks Review of AER Draft Determination 2012-15 Budget and Charges Applications

- Deloitte – Jemena Asset Management AMI OPEX review

In each case the reports have substantiated the JAM position and concluded that JAM's proposed amended base costs do not constitute a substantial departure from the commercial standard that a reasonable business would exercise in the circumstances.

These reports provided should be read in conjunction with this draft determination response.

1.1 Summary of Revised Submission JEN

Table 1-1 Summary of Revised JEN Base Capex and Table 1-2 Summary of Revised JEN Base Opex are year by year summaries of the proposed and revised submission for JEN base expenditure years 2012 to 2015 (this submission).

Table 1-3 for reference Original JEN (May) Submission Base Capex and Table 1-4 for reference Original JEN (May) Submission Base Opex are included for comparison purposes only and represent a summary of the original (May) re-submission for JEN expenditure years 2012 to 2015.

Table 1-1 Summary of Revised JEN Base Capex

Real 2011 $'000	2012	2013	2014	2015
Meters (Mass Rollout)	17,303	7,540	0	0
Installation (Mass Rollout)	9,649	3,975	0	0
New Connections, Adds and Alts	1,943	1,054	975	1,005
AMI Technology and Communications	1,238	998	647	747
IT Infrastructure & Systems	606	2,135	3,814	3,391
Projects (AMI Phase 6)	0	0	0	0
MRO Back Office	1,613	1,081	0	0
TOTAL CAPEX	**32,352**	**16,783**	**5,437**	**5,144**

Table 1-2 Summary of Revised JEN Base Opex

Real 2011 $'000	2012	2013	2014	2015
Asset Strategy & Planning	990	1,013	1,045	1,068
Asset Operations	952	974	1,004	1,024
Customer Contact & Back Office	2,428	1,940	1,839	1,873
AMI Network Operations	865	891	908	937
Meter Data Collection	669	251	0	0
AMI Transitional Business Activities	902	384	0	0
AMI Backhaul Communications	137	144	144	144
Management	152	182	187	190
Finance & HR	376	328	304	311
Regulatory Audit	95	95	95	95
Service Delivery & Contract Management	740	753	690	702
Stakeholder Relations	103	89	81	82
Premises	252	252	252	252
IT Level 2&3 Application Support	2,277	2,330	2,405	2,456
IT Hardware & Infrastructure Support	5,672	5,675	5,678	5,680
IT Software Application Maintenance	1,201	1,258	1,212	1,170
Base Non AMI IT Maintenance & Support	2,060	1,030	0	0
TOTAL OPEX	**19,872**	**17,589**	**15,844**	**15,985**

Table 1-3 for reference Original JEN (May) Submission Base Capex

Real 2011 $'000	2012	2013	2014	2015
Meters (Mass Rollout)	18,700	7,533	0	0
Installation (Mass Rollout)	8,564	3,547	0	0
New Connections, Adds and Alts	4,134	3,433	3,207	3,207
AMI Technology and Communications	1,318	998	647	747
IT Infrastructure & Systems	606	2,135	3,814	3,391
Projects (AMI Phase 6)	0	0	0	0
MRO Back Office	777	244	0	0
TOTAL CAPEX	**34,098**	**17,891**	**7,669**	**7,345**

Table 1-4 for reference Original JEN (May) Submission Base Opex

Real 2011 $'000	2012	2013	2014	2015
Asset Strategy & Planning	1,297	1,320	1,427	1,392
Asset Operations	744	758	827	844
Customer Contact & Back Office	2,333	1,964	1,870	1,906
AMI Network Operations	559	583	591	613
Meter Data Collection	553	80	0	0
AMI Transitional Business Activities	835	356	0	0
AMI Backhaul Communications	269	282	287	293
Management	152	182	187	190
Finance & HR	339	290	265	271
Regulatory Audit	95	95	95	95
Service Delivery & Contract Management	659	672	690	702
Stakeholder Relations	103	89	81	82
Premises	252	252	252	252
IT Level 2&3 Application Support	2,277	2,330	2,405	2,456
IT Hardware & Infrastructure Support	5,672	5,675	5,678	5,680
IT Software Application Maintenance	1,221	1,269	1,165	1,165
Base Non AMI IT Maintenance & Support	2,060	1,030	0	0
TOTAL OPEX	**19,422**	**17,226**	**15,820**	**15,941**

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1.2 Summary of Revised Submission UED

Table 1-5 Summary of Revised UED Base Capex and Table 1-6 Summary of Revised UED Base Opex are year by year summaries of the proposed and revised submission for UED base expenditure years 2012 to 2015 (this submission).

Table 1-7 for reference Original UED (May) Submission Capex and Table 1-8 for reference Original UED (May) Submission Opex and Table 1-4 for reference Original JEN (May) Submission Base Opex are included for comparison purposes only and represent a summary of the original (May) re-submission for UED expenditure years 2012 to 2015.

Table 1-5 Summary of Revised UED Base Capex

Real 2011 $'000	2012	2013	2014	2015
Meters (Mass Rollout)	53,105	5,062	0	0
Installation (Mass Rollout)	24,523	2,576	0	0
New Connections, Adds and Alts	3,087	1,363	1,240	1,240
AMI Technology and Communications	5,784	3,712	701	906
IT Infrastructure & Systems	10,848	2,260	3,814	3,391
Projects (AMI Phase 6)	0	0	0	0
MRO Back Office	3,428	2,297	0	0
TOTAL CAPEX	**100,775**	**17,269**	**5,755**	**5,537**

Table 1-6 Summary of Revised UED Base Opex

Real 2011 $'000	2012	2013	2014	2015
Asset Strategy & Planning	990	1,013	1,045	1,068
Asset Operations	1,575	1,611	1,660	1,694
Customer Contact & Back Office	3,901	2,604	2,562	2,612
AMI Network Operations	1,665	1,689	1,732	1,779
Meter Data Collection	1,626	610	0	0
AMI Transitional Business Activities	2,216	492	0	0
AMI Backhaul Communications	239	245	245	245
Management	715	777	784	789
Finance & HR	777	673	622	636
Service Delivery & Contract Management	1,213	1,218	921	938
Stakeholder Relations	219	190	171	175
Premises	536	536	536	536
IT Level 2&3 Application Support	3,101	3,172	3,274	3,344
IT Hardware & Infrastructure Support	6,337	6,341	6,346	6,349
IT Software Application Maintenance	1,832	1,959	1,914	1,880
Base Non AMI IT Maintenance & Support	2,660	1,330	0	0
TOTAL OPEX	**29,602**	**24,460**	**21,813**	**22,044**

Table 1-7 for reference Original UED (May) Submission Capex

Real 2011 $'000	2012	2013	2014	2015
Meters (Mass Rollout)	65,081	5,852	0	0
Installation (Mass Rollout)	24,656	3,278	0	0
New Connections, Adds and Alts	4,242	3,404	3,598	3,472
AMI Technology and Communications	5,915	3,712	701	906
IT Infrastructure & Systems	10,848	2,260	3,814	3,391
Projects (AMI Phase 6)	0	0	0	0
MRO Back Office	1,650	519	0	0
TOTAL CAPEX	**112,391**	**19,025**	**8,113**	**7,769**

Table 1-8 for reference Original UED (May) Submission Opex

Real 2011 $'000	2012	2013	2014	2015
Asset Strategy & Planning	1,659	1,666	1,784	1,756
Asset Operations	1,112	1,133	1,540	1,571
Customer Contact & Back Office	3,865	2,706	2,630	2,682
AMI Network Operations	1,002	1,036	1,058	1,091
Meter Data Collection	1,225	163	0	0
AMI Transitional Business Activities	2,029	497	0	0
AMI Backhaul Communications	502	515	521	526
Management	715	777	784	789
Finance & HR	721	616	564	576
Service Delivery & Contract Management	1,023	1,045	921	938
Stakeholder Relations	219	190	171	175
Premises	536	536	536	536
IT Level 2&3 Application Support	3,101	3,172	3,274	3,344
IT Hardware & Infrastructure Support	6,337	6,341	6,346	6,349
IT Software Application Maintenance	1,876	1,972	1,867	1,870
Base Non AMI IT Maintenance & Support	2,660	1,330	0	0
TOTAL OPEX	**28,583**	**23,694**	**21,995**	**22,201**

2 Introduction

- This document comprises JAM's interim response to the AER's Draft Determination in respect of the Victorian Advanced Metering Infrastructure Review 2012 – 2015 budget and charges applications.
- JAM has been requested by JEN and UED, to respond on relevant areas of the draft determination.
- JAM looks forward to working with the AER in the lead up to the final determination.

2.1 JAM's response

The AER published its draft determination in respect of the Victorian Advanced Metering Infrastructure Review 2012 – 2015 budget and charges applications on 28 July 2011. Among other Victorian distributors, the draft determination dealt with proposed budgets by Jemena Electricity Networks (**JEN**) and United Energy Distribution (**UED**). Jemena Asset Management (6) Pty Ltd (**JAM**) has been jointly engaged by JEN and UED to deliver Regulated Services (**metering services**) on JEN's and UED's networks. The vast majority of the budgeted costs proposed by JEN and UED are their respective shares of JAM's base costs of delivering metering services, as estimated by JAM and set out in JAM Substantiation of base costs to provide regulated services[1], which was provided as a supporting document with JEN's and UED's budget applications as Appendix A.

The AER's draft determination provides detailed commentary on many aspects of JAM's budgeted base costs and makes significant reductions to those costs.

This document comprises Jemena Asset Management's (**JAM**) response to the draft determination for consideration by the AER (**JAM's response**). As such, all dollar values in this submission are base costs and exclude any management fees charged by JAM to JEN and UED.

This section sets out the purpose and structure of JAM's response.

2.2 Background

On 28 July 2011 the AER released its Draft Determination in response to the budgets submitted by the Victorian distribution network providers for the rollout of the advanced metering infrastructure (**AMI**) for the 2012 – 2015 budget period.

[1] AMI Budget Application 2012-15, Substantiation of Base Cost to Provide Regulated Services, 25 February 2011

JEN and UED are required to provide an amended budget in response to the AER's draft determination.

JEN and UED, have requested that, to support their amended budget applications, JAM provide a report that:

a) with reference to the relevant tests in the CROIC[2], sets out a response to each item of base cost disallowance introduced by the AER in its draft decision, including, where relevant, a response to the Impaq consulting analysis that was used to justify these disallowances

b) quantifies the implications of JAM's response for UED's and JEN's original proposed budget, including any acceptances, in part or in full, of the AER's (or Impaq's) position

c) in light of (a) and (b), provides amended budget estimates of JAM's direct costs to be incurred in undertaking activities required to deliver the relevant regulated services

d) provides supporting material in respect of (a), (b) and (c).

2.3 Purpose, conventions and structure of this document

2.3.1 Purpose

The purpose of this response is to respond to the assertions of the Impaq Consulting Review of AMI budget submissions report of 20 July 2011 (Impaq report) and the draft determinations of the AER. Where the AER draft determination is accurate and correct, JAM accepts the finding and, if appropriate, does not respond, while making the necessary adjustments to JAM's base costs.

Where JAM believes that AER's finding is inaccurate, is based on an error of fact, or does not reflect current information, the response provides an explanation of why the finding is inaccurate or misplaced and, where useful, provides evidence to demonstrate JAM's position and/or to allow AER to base its determination on accurate and current information.

[2] Cost Recovery Order in Council (CROIC) means the Order in Council made 28 August 2007 under sections 15A and 46D of the Electricity Industry Act 2000 and published in the Victoria Government Gazette S200 on that day as amended by the Order in Council made 12 November 2007 and published in the Victoria Government Gazette S286 on that day, the Order in Council made 25 November 2008 and published in the Victoria Government Gazette S314 on that day, the Order in Council made on 31 March 2009 and published in the Victoria Government Gazette G14 on 2 April 2009, and the Order in Council made on 19 October 2010 and published in the Victorian Government Gazette G42 on 21 October 2010.

Ultimately, the purpose of this response is to assist the AER in making a determination that is accurate and correct, reflects actual market conditions and commercial positions and is based on current information and rational forecasts of future developments.

2.3.2 Monetary amounts

All monetary amounts presented in this revised regulatory proposal are expressed in real 1 July 2011 dollars unless otherwise stated.

2.3.3 Structure

The structure of this document follows the structure of the AER's draft determination as far as this is practicable so that it can be easily reconciled to the AER draft determination.

Each section addresses the equivalent sub section of the AER draft determination and provides a summary of JEN's and UED's original proposal, the relevant findings of Impaq, the AER's draft determination and JAM's response on behalf of JEN and UED.

3 JAM Regulated Service Operating Model

3.1 JAM AMI Transitional Model

In the previous submission period (2009 - 2011) JAM (then Alinta Asset Management) provided substantiation and overviews of the AMI Business Transitional Model. JAM feels that it is important that the AER understands that JAM has applied these principles when developing and establishing its labour model.

"Operational transition overview

In order to meet the AMI regulatory obligations, all new AMI processes and systems must be designed, implemented and supported prior to the commencement of rollout.

During transition, the JEN and UED businesses must maintain current operations, support new AMI processes and manage additional transitional complexities arising due to the rollout.

At the completion of the rollout, JEN and UED will have replaced all existing Type 5 and Type 6 meters with AMI meters.

Progressive change will be seen throughout transition (2009 – 2013) as the number of AMI meters increase and the number of existing Type 5 and Type 6 meters decrease. Contributing to this will be increases in metering functionality, tighter service delivery Substantiation of Base Costs to Provide Regulated Services and increased meter data volumes, driving the need for new and transitional AMI processes.

The business will need to manage the transition of its workforce and service providers from the current Type 6 processes and organisational structure to the new AMI processes and structure. AMI will require current staff and contractors to be trained and up-skilled, the introduction of new staff and service providers to meet new and transitional business processes and the reduction of staff and service providers in areas unique to Type 6 meters.

Figure 3-1 Business in Transition

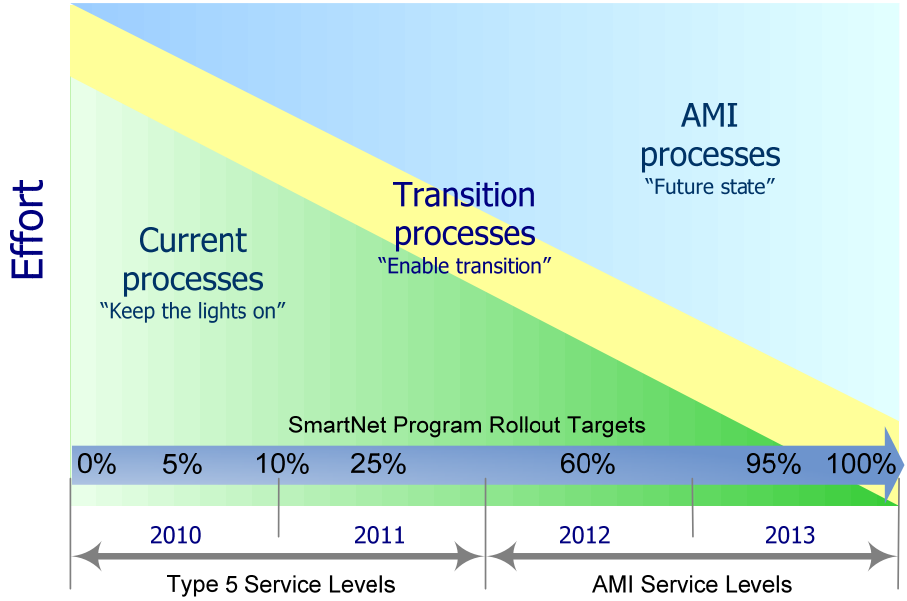

Figure 3-1 Business in Transition depicts how the key changes and transitional impacts of the rollout of AMI technology will shape the business throughout the different industry phases and highlights:

- *Current processes: The progressive decommissioning of existing Type 5 and 6 meters and processes.*
- *AMI processes: The change in time and effort to perform new processes related to AMI metering and systems; and*
- *Transitional processes: The effort to support rollout and to operate both current and new systems and processes in parallel, including the reconciliation between these systems."* [3]

In particular, JAM identified that: *"progressive change will be seen throughout transition (2009 – 2013) as the number of AMI meters increase and the number of existing Type 5 and Type 6 meters decrease. Contributing to this will be increases in metering functionality, tighter service delivery obligations and increased meter data volumes, driving the need for new and transitional AMI processes."* [4]

[3] AMI Budget Application 2009 – 2011, Substantiation of Base Costs to Provide Regulated Services, Report prepared by Alinta Asset Management Pty Ltd for Jemena Electricity Networks and United Energy Distribution, 26 February 2009, Section 14 - AMI Business and Industry Transition.

[4] AMI Budget Application 2009 – 2011, Substantiation of Base Costs to Provide Regulated Services, Report prepared by Alinta Asset Management Pty Ltd for Jemena Electricity Networks and United Energy Distribution, 26 February 2009, Section 14 - 2 -Operational transition overview.

Figure 3-2 Business in Transition and Baseline

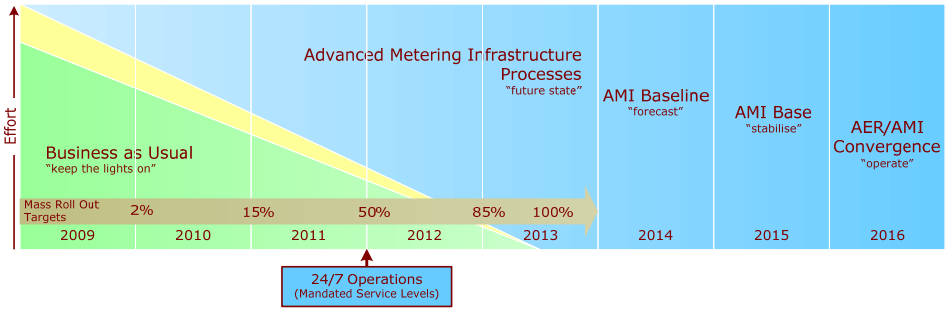

Figure 3-2 Business in Transition above depicts the volume of AMI Meters against BAU meters as well as the key changes during transition and the baseline (stabilisation) period beyond the AMI rollout.

The business has forecast the need to manage the transition of its workforce and service providers from the current Type 6 processes and organisational structure to the new AMI processes and structure. AMI requires current staff and contractors to be trained and up-skilled, the introduction of new staff and service providers to meet new and transitional business processes and the reduction of staff and service providers in areas unique to Type 6 meters."

Figure 3-3 Business Transition Risk Heat Map

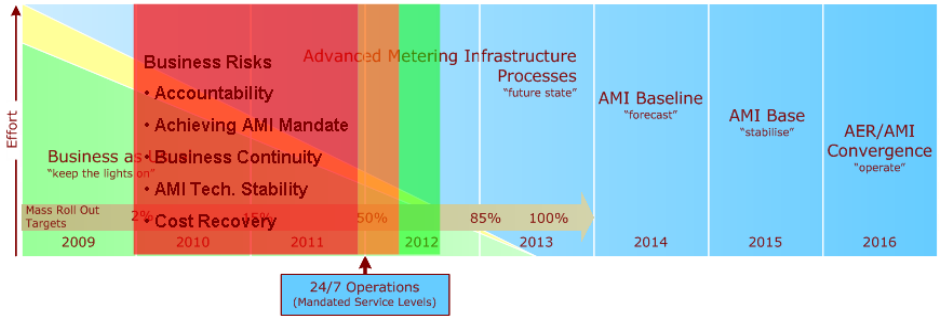

Figure 3-3 Business Transition Risk Heat Map above depicts the rollout phases at risk as a heat map where the AMI Solution deployed scales towards full production AMI volumes. During these periods the level of activity is high and what are otherwise stable systems are repeatedly challenged as they pass through capacity and performance barriers and potential tipping points. The transitional operating model is designed to pre-empt such events and ride through such barriers and maintain continuity of service.

3.2 JAM Shared Provision of Metering Services to UED and JEN

JAM has provided a single program of works to deliver a common AMI solution for UED and JEN and continues to provide capital and operational works programs for both distribution businesses through the period 2012-2015.

In late 2009 with the commencement of the production AMI solution, JAM fully defined and implemented the operating model for the business unit to deliver the metering services (Regulated Services as defined in the scope of Cost Recovery Order in Council CROIC). (This business unit within JAM was named as SmartNet and Customer Services, or **SNACS**). This operating model recognised the scope of the CROIC included the provision with limited exceptions of all metering services whether AMI or legacy (e.g. legacy metering).

As such a key driver of synergies is realised in the JAM shared operating model for regulated services where benefits can be readily achieved while UED and JEN AMI solutions maintain a common platforms, versioning and functionality while also meeting the UED and JEN business requirement to maintain and retain sovereign solutions.

The business requirement for sovereign solutions for both UED and JEN is in fact built as two identical stand alone end to end systems that share common locations but no common components. To ensure clear demarcation of UED and JEN IT assets equipment and systems are installed only in their respective designated UED or JEN racks for each and every Production, Disaster Recovery, Quality Assurance, Development and Test Environment.

The entirety of the shared regulated service business unit (**JAM SNACS**) is resourced to provide a single pool of staff, contractors and service providers for UED and JEN in combination. For each resource function or service the cost of providing that service is apportioned according to the volume of activities to provide the given service for each DNSP. In most cases a service can be apportioned either equally (50:50) where the activity is not influenced by the network size or apportioned according to network size (68:32). In a few cases other factors may result in an apportioning other than those two indicated above.

Within the operating model for shared metering services some resources provide services outside of those defined by the scope of the scope of Cost Recovery Order in Council. In each of those cases the headcount remains within the business unit however only a percentage of that headcount is apportioned to CROIC, with the rest apportioned to the relevant functions that are outside scope

of cost recovery under CROIC such as Alternative Control Services (**ACS**) and Standard Control services (**SCS**).

Therefore in developing and applying the operating model each resource or service agreement has a stated assumption for:

- percentage apportionment UED:JEN
- percentage apportionment to Opex or Capex
- percentage apportionment to CROIC, SCS and ACS

Therefore when the AER reviews the UED or JEN submission it is important to remember that in each case where an FTE is quoted that FTE provision is servicing both UED and JEN and that the cost of that FTE will reflect the apportioning according to the financial model assumptions. Where an FTE is also providing services outside the scope of CROIC then the cost of that FTE is further apportioned against CROIC/ACS/SCS according to the financial model assumptions.

3.3 Summary of JAM SNACS Organisation Staff

JAM has transitioned and populated the JAM SNACS organisation as described above and continues to scale up or down specific functions as the ongoing rollout and supporting organisation demands require. The following table represents the headcount of staff within each category of the financial model as well as vacancies that are either being recruited or have been intentionally deferred.

Table 3-1 JAM SNACS FTE Headcount

[C-I-C]

These numbers include new incremental roles identified as required as a result of the implementation of the AMI systems and processes. In some situations, existing staff were retrained as their roles were expanded to incorporate AMI and transitional tasks along with the need to continue to operate in legacy systems and process. In other situations, entirely new roles were created and staff were recruited.

4 Mass Rollout Meter Forecast

4.1 UED and JEN Meter Volumes original budget application

As part of the UED and JEN submission in Feb 2009 JAM advised of the following meter volumes and mass rollout profiles.

4.1.1 "Meter Volumes[5]

This chapter details UED's and JEN's plans for their AMI meter roll-out, and assumptions affecting those plans.

Clause 5.5(b) of the CROIC requires a budget application to include a forecast of the number of metering installations that the distributor proposes to install for each year of the period covered by the application. Two distinct work programs will support the roll-out of meters over the subsequent AMI budget period. The first is the AMI mass roll-out program which installs only AMI meters as part of the managed capital works program; the second is the BAU metering program which is responsible for installation of meters in response to requests from customers (via retailers) for new connections, additions and alterations.

The installation profiles for AMI meters for each of UED and JEN are shown in Table 4-1 and Table 4-2 respectively.

Table 4-1 - JEN installation profile

Mass Roll-out Volumes						
The following shows meter numbers over the planned roll-out period. These only include meters installed by MRO. AMI meter installed via BAU processes are not included. *The following volumes are based on two key assumptions:* • *Net customer growth from 2011 onwards is serviced by BAU processes* • *For AMI meters installed as part of BAU processes, that occur in areas yet to be visited by the MRO program (i.e. Adds/Alts and Solar), the model assumes that these volumes replace exchanges performed by the MRO. The volumes are calculated as a proportion of the network that has been rolled out.*						
Install - MRO – JEN	***2009***	***2010***	***2011***	***2012***	***2013***	***Total***
Single Phase (1 ph 1 element)	*11,167*	*30,796*	*102,801*	*64,000*	*26,667*	*235,431*
Single Phase off peak	*-*	*-*	*-*	*24,887*	*10,369*	*35,256*
Three Phase Direct	*549*	*1,562*	*8,940*	*13,217*	*5,507*	*29,775*

[5] AMI Budget Application 2012-15, Substantiation of Base Cost to Provide Regulated Services, 25 February 2011, Section 5

connected (3 ph)						
Three Phase CT connected (CT)	*0*	*0*	*0*	*2,038*	*849*	*2,887*
Total	***11,716***	***32,358***	***111,741***	***104,142***	***43,392***	***303,349***
%	*4%*	*11%*	*38%*	*34%*	*14%*	*100%*
Cum. %	*4%*	*15%*	*52%*	*86%*	*100%*	*-*

Table 4-2 - UED installation profile

Mass Roll-out Volumes						
The following shows meter numbers over the planned roll-out period. These only include meters installed by MRO. AMI meters installed via BAU processes are not included. *The following volumes are based on two key assumptions:* • *Net customer growth from 2011 onwards is serviced by BAU processes* • *For AMI meters installed as part of BAU processes, that occur in areas yet to be visited by the MRO program (i.e. Adds/Alts and Solar), the model assumes that these volumes replace exchanges performed by the MRO. The volumes are calculated as a proportion of the network that has been rolled out.*						
Install - MRO – UED	***2009***	***2010***	***2011***	***2012***	***2013***	***Total***
Single Phase (1 ph 1 element)	*11,131*	*71,453*	*215,396*	*104,038*	*22,128*	*424,146*
Single Phase, two element, off peak	*0*	*0*	*0*	*113,218*	*5,959*	*119,177*
Three Phase Direct connected (3 ph)	*1,232*	*5,794*	*18,743*	*41,913*	*3,796*	*71,478*
Three Phase, two element, Dir.Conn.				*12,498*	*658*	*13,156*
Three Phase CT connected (CT)	*0*	*0*	*0*	*2,718*	*143*	*2,861*
Total	***12,363***	***77,246***	***234,139***	***274,385***	***32,684***	***630,818***
%	*2%*	*12%*	*36%*	*44%*	*5%*	*100%*
Cum. %	*2%*	*14%*	*50%*	*95%*	*100%*	*-*

4.2 Revised UED and JEN Meter Volumes

Meter volumes installation targets within this submission have been revised to accommodate an end of year target of meter exchange cumulative target of 46% (inclusive of BAU installs) for UED and JEN. This report also adjusts the forecasting method for Business as Usual AMI meter installations for additions, alterations and faults which reduced the number of BAU AMI meter installs and consequently has the reciprocal increase impact to the MRO numbers.

The revised tables below provide a view of this submissions forecast of meter installations which are inputs into the updated financial model and AER budgets and charges template inputs.

Further the meter type definitions in the table below have been clarified to remove all doubt as to the meter type and associated volume.

Table 4-3 - JEN installation profile - Revised

Mass Roll-out Volumes

The following shows meter numbers over the planned roll-out period. These only include meters installed by MRO. AMI meter installed via BAU processes are not included.

The following volumes are based on two key assumptions:

- Net customer growth from 2011 onwards is serviced by BAU processes
- For AMI meters installed as part of BAU processes, that occur in areas yet to be visited by the MRO program (i.e. Adds/Alts and Solar), the model assumes that these volumes replace exchanges performed by the MRO. The volumes are calculated as a proportion of the network that has been rolled out.

* Note Cumulative total target is however inclusive of BAU AMI installations.

Install - MRO – JEN	2009	2010	2011	2012	2013	Total
Single Phase (1 ph one element)	11,159	31,313	87,609	75,084	31,285	236,450
Single Phase with load control	-	-	-	24,887	10,369	35,256
Three Phase Direct connected (3 ph)	571	1,031	7,392	11,524	4802	25,320
Three Phase Direct connected (3 ph), with load control	-	-	-	3,272	1,364	4,636
Three Phase CT connected (CT)	-	-	-	1,985	827	2,812
Total	**11,730**	**32,344**	**95,001**	**116,752**	**48,647**	**304,474**
%	4%	11%	31%	38%	16%	100%
*Cumulative Total %	4%	14%	46%	84%	100%	-

Table 4-4 - UED installation profile - Revised

Mass Roll-out Volumes

The following shows meter numbers over the planned roll-out period. These only include meters installed by MRO. AMI meters installed via BAU processes are not included.

The following volumes are based on two key assumptions:

- Net customer growth from 2011 onwards is serviced by BAU processes
- For AMI meters installed as part of BAU processes, that occur in areas yet to be visited by the MRO program (i.e. Adds/Alts and Solar), the model assumes that these volumes replace exchanges performed by the MRO. The volumes are calculated as a proportion of the network that has been rolled out.

* Note Cumulative total target is however inclusive of BAU AMI installations.

Install - MRO – UED	2009	2010	2011	2012	2013	Total
Single Phase (1 ph one element)	11,101	72,184	183,638	139,702	21,402	428,026
Single Phase, two element, with load control	-	-	-	113,218	5,959	119,177
Three Phase Direct connected (3 ph)	1,238	5,127	14,853	47,383	3,610	72,211
Three Phase Direct connected (3 ph), with load control	-	-	-	12,498	658	13,156
Three Phase CT connected (3ph CT)	-	-	-	2,660	140	2,800
Total	**12,339**	**77,311**	**198,491**	**315,461**	**31,768**	**635,370**
%	2%	12%	31%	50%	5%	100%
*Cumulative Total %	2%	14%	46%	95%	100%	-

It should be noted that the above reforecast in profile moves a significant number of meters installations from calendar year 2011 to calendar year 2012 and has a direct impact on the following category line items within the financial model.

- Meters (Mass Rollout)
- Installation (Mass Rollout)
- AMI Transitional Business Activities (increased claims cost)
- Meter Data Collection

It should be noted that the UED resubmission in May already includes an adjustment for meter forecast to a 46% target end of 2011 in the financial model similar to the profile above. The JEN resubmission in May however is based on a 52% target end of 2011 and this submission adjusts the profile to 46% target end of 2011 as per the above table.

The following Table is summary of the Mass Rollout Meter installation costs (inclusive of the revised exchange rate).

Table 4-5 Summary of Revised Meter Installation Costs

2011 real ,000	2012	2013	2014	2015
UED Meters (Mass Rollout)	53,105	5,062	0	0
UED Installation (Mass Rollout)	24,523	2,576	0	0
JEN Meters (Mass Rollout)	17,303	7,540	0	0
JEN Installation (Mass Rollout)	9,649	3,975	0	0

5 Meter Data Collection

5.1 UED and JEN Meter Data Collection Original budget application

As part of the UED and JEN submission in Feb and May 2009 JAM advised of the following meter data collection for the period.

5.1.1 "Meter data collection - Managing meters and meter data

This activity is core to the role of a market meter provider (MP) and a meter data provider (MDP). Primary activities involve:

- *Maintaining a registry of connection point data for all sub-160 customers*
- *Collecting and processing meter data from all sub-160 customers, including both AMI and non-AMI metering*
- *Generating substitution reads where actual reads are missing or fail validation rules*
- *Providing meter data to market participants, in the case of AMI on a daily basis, by 6a.m., consistent with the service level specification, and in the case of non-AMI meters, within 2 business days of the meter reading*
- *Compliance with rules and procedures to ensure MP and MDP accreditation is maintained, and compliance with responsible person metering obligations.*

Collection and processing of meter data is managed by a mixture of JAM employees and staff engaged under the Aegis contract, or in the case of manual meter reading, under the terms of the Skilltech contract.

All forecast expenditure through Aegis for back office activities was awarded by competitive tender.

All forecast expenditure for manual meter reading collection by Skilltech was awarded by competitive tender."[6]

Table 5-1 Original Submission (May) Cost of Meter Data Collection

Real 2011 $'000	2012	2013	2014	2015
JEN Meter Data Collection	553	80	0	0
UED Meter Data Collection	1,225	163	0	0

[6] AMI Budget Application 2012-15, Substantiation of Base Cost to Provide Regulated Services, 25 February 2011, Section 12.2.1 – Meter Data Collection, Managing meters and meter data

5.2 AER draft decision Meter data Collection

The AER has accepted the UED and JEN submission on Meter Data Collection unadjusted based on the May 2011 Submission

5.3 Revised UED and JEN Meter data Collection

Subsequent to the May submission JAM has found that the forecast rate of cost reduction of Meter Data Collection is not being realised as meter reading routes are becoming less efficient due to a partial AMI rollout.

In mass rollout areas the AMI meter population varies in the order of 50% to 70% dependent on the exchange refusal rate and number of complex sites within that meter reading route. As such all remaining non AMI meters need to be face read within that route 30% to 50% of meters. The resulting meter reading route is effectively the same travel distance for the meter reader with less meters to read taking only marginally less time to complete that the original 100% face read route before AMI.

As a result of the number of the number (most) incomplete AMI meter routes only small reductions have been possible to date and a reforecast of the Meter Data Collection costs results in a higher cost for 2012.

It should be noted that the revised model for Meter Data Collection is based on the existing and competitively tendered costs and associated contracts with Select Solutions. The resultant inefficient meter routes has resulted in a modification of the unit rates which were required due to incomplete AMI routes as described above. Prior to this point Meter Data collection assumed a only approximately 5% exceptions due to no access, which would be picked up as special meter reads). The contract did not allow for 50% to 70% AMI meter pass over. Meter readers must now continue to read routes with fewer meters over the same area, which has resulted in the requirement for an increasing unit rate for each contract year. This renegotiation has resulted in an annual ratchet up of individual meter read rates from existing rates right through to the end of the mass rollout project in mid 2013.

Table 5-2 Meter Data Collection Volumes

Meter Data Transactions	Pre AMI	2011	2012
JEN Scheduled Quarterly Basic Meter Reads	1,342,579	1,006,934	537,032
JEN Scheduled Quarterly Interval Meter Reads	58,000	43,500	23,200

Meter Data Transactions	Pre AMI	2011	2012
JEN Scheduled Monthly Basic Meter Reads	67,661	50,746	27,064
JEN Service Order Reading (Sum)	97,054	72,791	38,822
UED Scheduled Quarterly Basic Meter Reads	2,790,159	2,092,619	1,116,063
UED Scheduled Quarterly Interval Meter Reads	36,672	27,504	14,668
UED Scheduled Monthly Basic Meter Reads	157,182	117,887	62,872
UED Scheduled Monthly Interval Meter Reads	15,210	11,408	6,084
UED Scheduled Interval Meter Reads - in Interval Specific Routes	18,987	14,240	7,594
UED Service Order Reading (Sum)	313,011	234,759	125,204

Table 5-3 Revised Submission Cost of Meter Data Collection

Real 2011 $'000	2012	2013	2014	2015
JEN Meter Data Collection (May Submission)	553	80	0	0
JEN Meter Data Collection (This Submission)	669	251	0	0
UED Meter Data Collection (May Submission)	1,225	163	0	0
UED Meter Data Collection (This Submission)	1,626	610	0	0

JAM therefore advise that the AER should approved the revised and corrected forecast above for Meter Data Collection and disregard the previously submitted costs.

6 Neutral Services Testing

6.1 UED and JEN original budget application

UED and JEN have constructed a weighted average price that is applied to all installations. This was made up of standard installation costs, panel replacement costs, printing and postage costs, revisits costs, neutral service testing (NST) etc. This resulted in a price of approximately $52 that was applied equally across all installations.

6.2 Impaq review

The IMPAQ consulting report states:

"In respect of NST appointments, NST testing is not a requirement of the AMI program. There is no obligation in the Distribution Code nor the Service and Installation rules. Although it is advantageous to undertake such testing while on site doing a meter replacement, it is nevertheless a cost to be recovered under DUOS. Hence Impaq's assessment is that this activity is out of scope."7

6.3 AER draft decision

AER stated: in Section A.5 and A.6 Installation costs of new connections and neutral services testing8

"JEN's proposed capex forecasts included expenditure for neutral services testing and installation costs for new connections. In establishing whether expenditure is within scope the AER has applied the principles as set out in its framework and approach paper. Activities are within scope where reasonably required for the provision of regulated services and to comply with a metering regulatory obligation or requirement. The AER has applied this test and considers the following activities of JEN to be outside scope:

- *Neutral services testing: The AER considers neutral services testing to be beneficial for safety purposes and has provided an allowance for these services in its Victorian Distribution Determination 2011-15. The AER considers that the appropriate mechanism for the recovery of such expenditure is under standard control services. The AER further notes that neutral services testing are not within the scope of the revised Order.*

[7] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, Jemena Section 5.2 and United Energy Section 8.2

[8] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, United Energy Section A.6 and JEN Section A.5

Therefore, the AER has determined that JEN's budget be reduced by the amount proposed for these out of scope expenditure."

AER has determine the equivalent for UED in section A.6

"With regard to neutral services testing, as discussed in section A.5 the AER considers this activity to be out of scope."[9]

6.4 JAM response

Impaq's assertion that UED and JEN are not obliged to perform NST testing is factually incorrect.

When a meter change takes place as part of the rollout, the distributor needs to de-energise and re-energise the premises. Under the Victorian Electrical Supply Industry - Connection Procedures, Section 4.14 specifies the procedures to be followed when re-energising a premise. This includes performing NST testing.[10] Accordingly, UED and JEN are required to perform these tests. The Order in Council in Victoria Government Gazette G33 13 August 2009 [11] determines the qualifications required for meter installers which states:

> "*To maintain the integrity and safety of the customer's electrical installation the work must be carried out by a person who –*
>
> *(iii) undertakes testing in accordance with the requirements of the Victorian Electricity Supply Industry (VESI): Installation Supply Connection Tests & Procedures manual to ensure integrity of supply to the customers main or occupancy switchboard or equipment to be supplied and the correct operation of metering equipment; and*
>
> *(iv) prior to enabling the electrical installation to be used by the customer verifies as far as practicable that the installation is safe to energise;"*

The NST Cost is part of a bundled installation fee and the NST cost cannot be separated as the NST works are undertaken as part of the installation process. JAM is of the opinion that the VESI rules stipulate an NST test is mandatory for all metering and servicing works inclusive of an AMI meter exchange.

Accordingly, UED and JEN are of the view that the costs of NST are in scope for AMI and the level proposed in the Budget Application is appropriate and reflects the requirements of the above Order in Council.

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[9] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, United Energy Section D.4.4 and JEN Section D.5.2

[10] http://www.vesi.com.au/site/DefaultSite/filesystem/documents/ICP/VESI_Section_4_030111_Connection_Procedures.pdf

[11] Order in Council Under Section 15A and Section 46D, Electricity Industry Act Vic (2000) Victoria Government Gazette G 33 13 August 2009

7 Network Augmentation

7.1 UED and JEN original budget application

AMI Network Planning and Augmentation activities include performing AMI network optimisation, maintenance and augmentation projects beyond the end of the rollout[12]. These are required to match the organic growth of the UED and JEN distribution networks largely attributed to new housing development on the fringes of the communications networks.

7.2 Impaq review (JEN Only)

"AMI Technology and Communications Capex[13] *the AMI Technology and Communications Capex in the JEN submission is $3.7m for 2012 to 2015. The JEN Budget template gives $4.73m for 2012 to 2015. The JEN Attachment 3 Reconciliation 100 gives $3.7m (after adding [C-I-C]% JAM margin and adjusting to 2011$) but excluding back office. It is this latter cost that has been used as the basis for evaluation because the Back Office Capex is considered separately in section 5.4.2*

This item includes the purchase and installation costs of APs and relays. The purchase costs for Silver Spring APs and relays in US$ reconciles with the Silver Spring contract; however the exchange rate is assumed to be [C-I-C]. As discussed above Impaq's view is that an exchange rate of 1.05 is more appropriate. The installation costs for APs and relays reconcile to the Service Stream installation contract.

The costs include:

- *Supply and installation of additional APs and relays at cost of $557,000. Impaq has reviewed the component costs and consider these reasonable;*
- *Network augmentation at a cost of $570,000. Given that there is already a similar amount for supply and installation of APs and relays listed above and that there is an allowance for costs for communications technology management in opex (see section 5.6.1) this appears redundant. Hence Impaq does not consider the cost to be prudent;"*[14]

"*Asset Strategy and Planning*

[12] AMI Budget Application 2012-15, Substantiation of Base Cost to Provide Regulated Services, 25 February 2011, Section 11.2.3

[13] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, Section 5.4 AMI Technology Communications Capex

[14] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, Section 5.4

The cost of this activity would be substantially labour and the level of expenditure forecast represents approximately nine tertiary qualified FTEs, likely to be telecommunications engineers.

AMI Strategy and Planning includes costs related to:

- *network maintenance and augmentation programs"*[15]

Impaq did not make a finding for UED in respect of this issue.

7.3 AER draft decision

"UED (and JEN) proposed expenditure relating to network augmentation, the management of major AMI technology releases, validation of releases, vendor management and stakeholder relations as part of its 2012-15 budget application.

The AER considers that this expenditure has been recovered elsewhere in UED's (and JEN's) budget applications. Therefore, the AER has determined that it is more likely than not that the expenditure will not be incurred." [16]

7.4 JAM response

The deployment of AMI can be grouped into three distinct phases being:

- Strategic Mass Rollout deployment where:

  All up front planned communications infrastructure of access points (**APs**) and relays are deployed in the as designed position to form the principle backbone of the communications infrastructure (over a relatively short period of time).

- Tactical Mass Rollout deployment where:

  Individual tactical deployments of APs and relays that are used to supplement and extend coverage into difficult segments of the distribution territories so that every existing meter can be reached.

- Network Augmentation deployment where:

  Post completion of the Mass Rollout, the Advanced Metering Infrastructure requires subsequent augmentation to cover growth (e.g. new estates), and change of conditions (e.g. new buildings, environmental), and intermittent

[15] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, Section 5.6.1 Asset Strategy and Planning

[16] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, Unoted Energy Section 3.3.1.1 and JEN Section 3.3.1.2

optimisation (load balancing), by deploying or relocating APs or relays to maintain comprehensive, if not ubiquitous, coverage.

For both UED and JEN strategic deployment of AMI communications equipment was effectively complete in early 2011 as part of the accelerated rollout of AMI communications equipment. Tactical deployment of APs and relays commenced in 2011 and will continue into 2012. It is forecast that all Tactical Deployments will be complete in 2012 and that ongoing Network Augmentation will continue with a small number of AP and relay additions and relocations each year until the end of asset life.

Table 7-1 LAN Equipment Design Volumes (to 2012)

Units	Strategic	Tactical	Total
UED APs	187	16	203
UED Relays	339	630	987
JEN APs	84	16	100
JEN Relays	202	340	542

The Scope of Network Augmentation of AMI LAN equipment APs and relays requires periodic augmentation and optimisation with the growth of new connections or network events. For example:

- new residential / industrial estates in areas of formerly sparse density
- increasing density within established coverage areas where the population of meters per AP grows in excess of the nominal 3500 meters per AP
- inadequate regional coverage (difficult sites or regions) due to a change in radio frequency environmental landscape
- non warranty failure and replacement of APs or relays. (HV injection, car into pole, pole fire)
- relocation of LAN equipment to improve efficiency and balance of Mesh operations

Network Augmentation activities assume:

- a failure rate of non warranty at no more than 1 per cent per annum
- new equipment placements for JEN of 5 APs and 8 relays per annum (13 devices), and for UED 6 APs and 12 relays per annum (18 devices)

- equipment relocations (for performance optimisation) for JEN of 3 APs and 9 relays per annum (12 Devices), and for UED of 4 APs and 12 relays per annum (16 devices).

The Impaq report incorrectly assumes that two line items of a similar magnitude are duplicate entries in the JEN submission. JEN's submission identifies the cost of APs and relays at $557,000 which falls in 2012. This relates to tactical JEN deployments. Whereas the Network augmentation cost of $570,000 is for the years 2012-2015, which is not the same period.[17]

The UED equivalent was not identified by Impaq as these line items are of different magnitude.

The Draft Determination has incorrectly concluded that the Network Augmentation expenditure has been recovered elsewhere in the budget application. However JAM maintains that the identified expenditure on Network Augmentation will be incurred and that the costs remain as submitted in the Budget Applications (except for changes in relation to exchange rates).

Table 7-2 AMI Technology and Communications - Network Augmentation

Real 2011 $'000	2012	2013	2014	2015
AER Determined	0	0	0	0
UED Submission	180	180	180	180
JEN Submission	131	131	131	131

[17] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, Section 5.4

8 AMI Technology releases

8.1 UED/JEN original budget application

8.1.1 AMI technology

"Most activities relating to AMI technology procurement and selection were completed during the initial AMI budget period 2009-2011.

AMI technology activities over the subsequent AMI budget period largely relate to the management, acceptance and deployment of vendor releases for the chosen AMI technology. In addition, some activity will relate to the continued development of the overall AMI technology strategy and roadmap.

Work will continue over the technology lifecycles to secure the benefits of AMI technology maturing, and avoid obsolete and unsupported assets. To achieve this, the AMI technology will undergo an annual release upgrade with minor releases schedule for 2012, 2014 and 2015, and a major release scheduled for 2013.

Under the terms of the existing LAN contract, new releases are provided and included within the contract cost. However once each release is received by UED and JEN , it requires thorough testing to ensure it is defect-free, and compliant with the Victorian AMI Functionality Specification and all other relevant regulation prior to its deployment into a production environment. The AMI technology team will manage this task, with additional resources brought on to assist where required. JAM will procure these additional resources following the engaged in accordance with Jemena's Recruitment and Selection Policy and procedures."[18]

8.1.2 Testing for new releases of NMS and AMI communications

"AMI introduces a number of new functions into the business. The AMI technology test lab supports the ongoing production and maintenance of AMI meters and communications networks. Testing activities are required to ensure that updates provided by AMI vendors comply with the Victorian Functionality and Service levels specifications.

All forecast expenditure will be made is considered prudent under the CROIC, it has been, or will be, committed to in accordance with the commercially reasonable but not tendered procurement processes described in chapter 9."[19]

[18] AMI Budget Application 2012-15, Substantiation of Base Cost to Provide Regulated Services, 25 February 2011, Section 11 - AMI Technology

[19] AMI Budget Application 2012-15, Substantiation of Base Cost to Provide Regulated Services, 25 February 2011, Section 11.2.5 – Testing for new releases of NMS and AMI communications

8.2 Impaq review

8.2.1 AMI Technology and Communications Capex

"Silver Spring technology major release and minor releases. The cost of $1,080,000 for this is not substantiated but presumably is for testing releases before rolling them out to meters and communications equipment. This is considered reasonable;

Minor Secure Meters releases at $208,000. The software intensive nature of AMI meters will result in the need for software/firmware upgrades. This is considered reasonable;" [20]

8.2.2 Asset Strategy and Planning

"Impaq is of the view that 'validating vendor releases' and 'managing major AMI technology releases' would be capital expenses and are covered in IT Capex (section 5.4.1) and Communications Capex (section 5.4). Further, the cost of 'AMI technology vendor management' is included in the cost category 'Service Delivery & Contract Management.' (section 5.6.11)." [21]

8.3 AER draft decision

8.3.1 Management of major AMI technology releases validation of releases and vendor management

"JEN has proposed expenditure for the management of major AMI technology releases, validation of releases and vendor management network augmentation as part of its asset strategy and planning opex category.

The AER considers that the management of major AMI technology releases and the validation of releases will be recovered under JEN's IT capex forecast expenditure, and allowance for which has been provided in this draft determination and is not likely to be incurred twice. Similarly the forecast for AMI vendor management will be recovered under JEN's service delivery and contract management expenditure forecast for which an allowance has also been provided in this draft determination and is not likely to be incurred twice.

Therefore, the AER has determined that JEN's budget be amended to remove these proposed expenditures." [22]

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[20] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, Section 5.4 AMI Technology Communications Capex

[21] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, Section 5.6.1 Asset Strategy and Planning

[22] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, C.1.2 United Energy and C.2.2 JEN Electricity Networks

8.4 JAM response

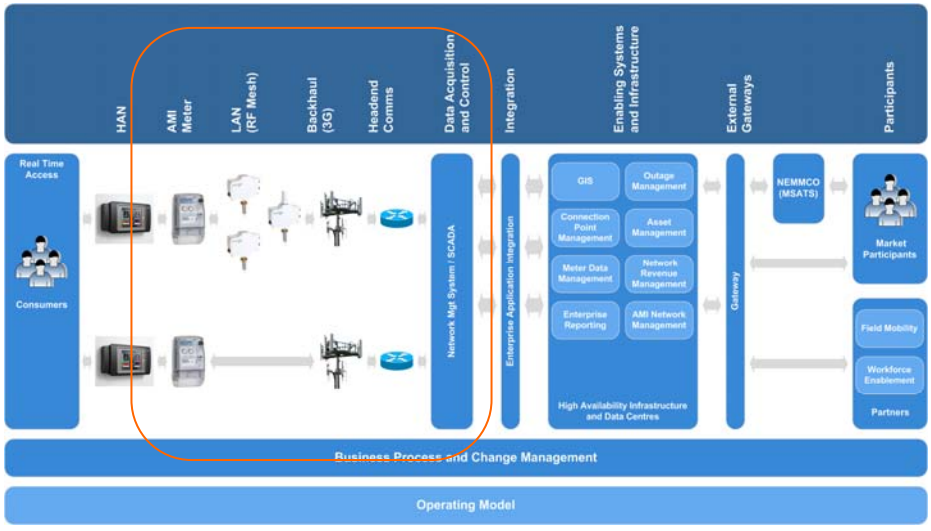
JAM notes that the AER and Impaq agree that AMI Technology software, firmware and configuration releases are regular and reasonable.

JAM would like to make clear that AMI Technology releases are already considered Capex costs. The releases are easily distinguishable from IT Capex as the related equipment and systems are not traditional IT assets but rather a distinct class.

As an example, a Firmware upgrade of an advanced meter is not comparable in any way to any IT asset but rather an industrial embedded controller integrated into an electricity meter. For comparison purposes, the AER's and Impaq's approach is akin to saying that a car's engine management system should be maintained by your local personal computer dealer as it is technically a computer and therefore an IT asset.

JAM has therefore clearly demarcated the AMI Solution between the Network Management System (NMS) and the Enterprise Service Bus. Any system or technology from NMS down is operated and supported by the metering staff of JAM directly; and all systems and applications above NMS are considered IT assets and therefore managed and supported by JAM's IT staff.

Figure 8-1 AMI Technology Landscape



As depicted in Figure 8-1 AMI Technology Landscape the bounded box highlights the AMI Technology scope from the Meter, communications solution and Network Management System (NMS)

It is therefore appropriate, as is done in UED's and JEN's budget applications, to divide budget allocations between IT Capex and AMI Technology Capex and not merge these two categories into one generic IT Capex.

AMI Technology releases can be broadly categorised into three classes being;

- Patches and Hot Fixes
  Where a defect or issue is resolved by evaluating, testing and deploying a correction in a software, firmware or a configuration component as part of ongoing operations by business as usual staff

- Minor Releases
  Where one or more dot point release versions are evaluated, end to end tested, regression tested and deployed as a capex project by a project team made up of business as usual staff and supplemented by external specialist contractors.

- Major Releases
  Where one or more full version numbered release are evaluated, integrated into upstream systems, end to end tested, regression tested and deployed as a capex project by a project team made up of business as usual staff and supplemented by external specialist contractors.

Each AMI Technology release cycle is made up of a delivery team with representatives from Strategy and Technology (subject matter experts), AMI Network Operations (end users), AMI Technology Test Laboratory, the respective vendor(s), contract (vendor) managers, developers (as required), IT support, change and release management. The scale of any given project dictates how the project is resources by scaling up from the permanent staff to create an effective delivery team.

It is for the above reasons that the AMI Technology release management capital projects should remain distinct from IT capex projects. On this basis, JAM maintains that the original proposed budgets for JEN and UED should remain unchanged.

9 Stakeholder relations

9.1 UED/JEN original budget application

9.1.1 Industry development and stakeholder relations

This activity involves liaising with the UED and JEN regulatory managers and assisting in the development of regulatory submissions regarding regulated services, participating in industry working groups such as the Victorian AMI working groups and the IEC national reference groups and engaging with government stakeholders such as the Victorian Department of Primary Industries (**DPI**) and the Essential Services Commissions of Victoria. (**ESC**)

It remains important for JAM staff, on behalf of UED's and JEN's joint roll-out, to participate in industry forums to bring insights gained from the early phases of the meter roll-out, and to promote developments that are technically feasible, prudent and efficient. [23]

9.2 Impaq review

9.2.1 Stakeholder Relations

"JEN (and UED) has provided forecast costs for Stakeholder management. Impaq notes that JEN (and UED) has stated that the stakeholder management activities of: · participating in industry working groups and forums; and · engaging with Government stakeholders, are included in the JEN (and UED) cost forecast for management, which Impaq has accepted (see Section 5.6.8 / 8.1.6 of this report). Impaq is of the view that the activities of stakeholder management are already included in the management category and that there should be no additional costs allowed." [24]

9.2.2 Management

"UED has forecast costs that approximately equate to four FTEs to carry out management activities, including:

- *assisting in developing regulatory submissions;*
- *participating in industry working groups and forums;*
- *engaging with Government stakeholders; and*

[23] AMI Budget Application 2012-15, Substantiation of Base Cost to Provide Regulated Services, 25 February 2011, Section 12.3.6 - Management, facilities and other costs Industry Development and Stakeholder Relations

[24] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, Section 5.6.12 / 8.1.9 Stakeholder Relations

- *supporting other regulatory and compliance activities*." [25]

Impaq make the same comments regarding JEN's submission however the reference is to one FTE. [26]

9.3 AER draft decision

9.3.1 Stakeholder relations

"JEN and UED have proposed expenditure for stakeholder relations in the respective opex forecasts. The AER considers that the documentation provided by JEN and UED does not adequately justify the expenditure for this activity, particularly with respect to the level of activities involved. However, assuming that the matters for stakeholder relations are similar to JEN and UED's "assets operations" and "management" activities, and in the absence of a more detailed justification for the expenditure, the AER considers that this expenditure has been recovered under JEN and UED's asset operations and management forecasts for which an allowance has been provided for in this draft determination and is not likely to be incurred twice.

Therefore, the AER has determined that JEN and UED's budgets are to be amended to remove this proposed expenditure." [27]

9.4 JAM response

JAM maintains that Industry development and stakeholder relations activities are critical to ensure ongoing industry engagement and development for metering and servicing activities. These roles and functions are to support the evolving regulatory processes and procedures which have been stimulated by the introduction of AMI.

The role of stakeholder relations is to represent and/or assist UED and JEN in communicating their respective positions at industry working groups, committees and to decision-making bodies.

It is true that management staff, which are budgeted for separately to stakeholder relations, make a small, but important contribution to industry development at a strategic level. However, the work required for industry development and stakeholder functions is delivered and coordinated by the following positions (or parts thereof):

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[25] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, Section 8.16 Management

[26] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, Section 5.6.8

[27] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, JEN Section C.1.3 and UED Section C.2.3

- Industry Development Manager

The Industry Development Manager provides leadership and expertise on regulatory and compliance issues associated with metering assets and equipment that support the UED and JEN electricity networks. The Industry Development Manager provides representation at national and Victorian working groups, undertakes analysis of new regulatory changes, and contributes to consultations on process, procedures, standards, rules and regulations.

The Industry Development Manager is apportioned on an equal effort basis (50:50 split) between UED and JEN.

- Retailer Account Manager

The Retail Account Manager is responsible for participating in a team which account manages over 20 energy retailers. The objective of this position is to identify and manage strong relationships with stakeholders and to capture business efficiencies and operational service improvement opportunities amongst this customer base. The position is also responsible for providing regular forums to retailers on business progress and status of the AMI roll-out, in addition to assisting with escalated billing and meter data retail issues.

Only 30 per cent of the cost of the Retail Account Manager is apportioned to AMI, with 60 per cent apportioned to standard control services and 10 per cent to gas services. This reflects the approximate amount of time spent by this staff member on dealing with issues across different service classifications. The portion that relates to AMI is then split 68:32 between UED and JEN to reflect the difference in the number of base customers of the two distribution businesses.

- Stakeholder Relations Team Leader

The Stakeholder Relations Team Leader is responsible for co-ordinating and training all AMI customer service representatives (tasks inclusive of: complaints, claims, EWOV, general customer inquiries, customer defect and no-access management), as well as reporting and tracking of KPI claim and complaints statistics and budgets. The position also participates in MRO meetings and workshops (both internal and external) and assists in handling escalated AMI issues raised by customers.

Only 45 per cent of the cost of this staff member is apportioned to AMI, a further 45 per cent to standard control services and the last 10 per cent to gas services. The portion that relates to AMI is then split 68:32 between UED and JEN.

- Mass Rollout Stakeholder Communications Advisor

The Mass Rollout Stakeholder Communications Advisor is an interface with external stakeholders in relation to support communications for key projects, as well as a key interface with internal Corporate Affairs in relation to AMI related media inquiries. This position is also responsible for developing communication strategies including AMI customer communication material, community education forums and local council information sessions as well as handling escalated customer inquiries to the CEO or local government.

The Mass Rollout Stakeholder Communications Advisor is split 68:32 between UED and JEN.

This functional category is further supported by several subject matter experts (SMEs) and disciplines as required to fulfil a business or industry requirement. The cost of these SME resources are recovered elsewhere in the operating model.

The AER and Impaq may not fully appreciate the extent to which JEN and UED proactively manage and support industry and stakeholder relations. As an example, the engagement undertaken to progress industry to a point where it is approaching the first remote activation of an advanced meter has required extensive time and resources. This has required contributions to the Victorian process model development, industry risk assessments, education forums, safety cases and working with Energy Safe Victoria (**ESV**), the Department of Primary Industries (**DPI**) and retailers to finalise guidelines to support the process. Such examples are common and will continue as the AMI functionality evolves into new territory such as unlocking the customer and societal benefits for AMI.

The above four positions are separate to the “asset operations” activities and JAM maintains that the Industry Development and Stakeholder Relations functions are distinct roles from the “asset operations” and “management” functions and should be approved as originally submitted.

10 Mass Roll – out - Truck support

10.1 UED/JEN original budget application

In JEN and UED's original budget application,[28] truck support costs were provided as outlined in the table below.

Table 10-1 Truck Support Costs

[C-I-C]

These costs were calculated as part of the competitive tender process undertaken for Installation Services for the AMI mass rollout program. MRO Installation Capex Costs are provided in the table below.

Table 10-2 MRO Installation Capex Original Submission

Nominal $,000	2012	2013	2014	2015	Total
UED	21,652	3,278	-	-	24,930
JEN	8,564	3,547	-	-	12,111

10.2 Impaq review

In the Impaq review it was noted that *"these truck support costs are well above the Alternative Control Service charge of $296.84 for JEN [and $105.01 for UED] for a Truck for 30 minutes. It is Impaq's view that a 30 minute truck visit would be adequate for almost all instances of the above categories. Impaq has therefore substituted ACS truck visit costs."*[29],

[28] JEN Attachment 3, Reconciliation Spreadsheet, Tab 10 MRO Installation Unit Rates, cells A22 to C26 & UED Cap Recon workbook "MRO Installation rates" tab.

[29] Australian Energy Regulator, Review of DNSPs AMI Budget Submissions for 2012 to 2015, Version 2.2, 20 July 2011, p. 52 (JEN) & p. 152 (UED)

Impaq has therefore adjusted the MRO Installation budget as per the table below.

Table 10-3 MRO Installation Capex Impaq View

Nominal $,000	2012	2013	2014	2015	Total
UED	16,412	2,618	-	-	19,030
JEN	6,892	2,851	-	-	9,743

10.3 AER draft decision

Based on the Impaq Consulting review, the AER has upheld Impaq's proposed budget for both JEN and UED. Furthermore, the AER has indicated that "*UED (and JEN), has not provided any statistical evidence to substantiate its claims that these assumptions [expected incidences] are reflective of its operations.*"[30] The AER have also questioned whether the average duration of a truck visit of 2 hours is substantially higher than the approved alternative control services time periods.

10.4 JAM response

In its draft determination, the AER accepts that the contract for the installation of AMI meters during the rollout was let in accordance with a competitive tendering process.[31]

As per the table provided below[32], truck support costs were one component of the tendering process.

Table 10-4 Competitive Tender Meter Installation including Truck Support

[C-I-C]

[30] Draft Determination, Victorian Advanced Metering Infrastructure Review, 2012 2015 budget and charges applications, 28 July 2011,UED Section D.4.4, and JEN Section D.5.2

[31] Draft Determination, Victorian Advanced Metering Infrastructure Review, 2012 2015 budget and charges applications, 28 July 2011, p. 74.

[32] MRO Installation Tender BAFO Results.xls (source data)

[C-I-C]

However, as demonstrated in this table, the truck support costs varied significantly between vendors. In the case of the successful tender respondent, Service Stream, its truck support costs were not the lowest, but were second lowest. However, based on the entire bundled tender offering, Service Stream did deliver the best value for money. It is not appropriate for the AER to apply the commercial standard test to a single item in a total bundled tender pricing structure.

Additionally, it is not appropriate to compare the truck support costs directly to other truck support costs approved under ACS. Due to the nature of the mass rollout program, the most efficient and timely way of dealing with the requirement for truck support is to have a truck on standby in the area. When a meter installer identifies an issue that requires a truck, then the truck can quickly respond and resolve the issue. This minimises the off supply time for the customer and minimises the overall impact to customers of the mass AMI rollout project.

A truck required in a standard fault situation (warranting a truck support fee as per the alternative control services charges), would only be called on when a customer notifies a fault. When they are not dealing with faults, the support trucks are occupied with other network tasks such as new connections, overhead works or other network maintenance activities. Depending on the priority of the fault and the activity on the distribution network, these trucks could take up to four hours to respond to a customer fault (although the customer is only charged for the period of time the truck is on site).

JAM also notes that the ACS charges for truck visits that were set by the AER, while not appealed, were not accepted by JEN and UED as being fully reflective of the efficient costs of providing the service.

In conclusion JAM confirms that the original proposed budget relating to Mass Rollout Truck Support is competitively tendered and is justified. JAM considers that these services are not comparable to ACS unit rates for the reasons provided above.

Table 10-5 MRO Installation Capex Original (May) Submission

Nominal $,000	2012	2013	2014	2015
UED	24,656	3,278	-	-
JEN	8,564	3,547	-	-

Table 10-6 MRO Installation Capex Revised Submission

Nominal $,000	2012	2013	2014	2015
UED	24,523	2,576	-	-
JEN	9,649	3,975	-	-

11 Panel Replacement Rate

11.1 UED and JEN original budget application

UED and JEN have constructed a weighted average price that is applied to all installations. This was made up of standard installation costs, panel replacement costs, printing and postage costs, revisits costs etc. This resulted in price of approximately [C-I-C] that was applied equally to all across all installations.

This price included the cost of performing panel replacements for when a panel is defective.

11.2 Impaq review

Impaq makes the following comments in respect of the panel replacement rate in JEN's Application:

"The instance of panel replacements at 10.10 per cent is higher than other DNSPs are experiencing. In response to questions about this JEN (JAM) have advised that in the rollout up to 2011 sites requiring panel replacement have been skipped. Impaq considers that although this may be an easier approach for JEN it nevertheless adds cost to the AMI program as it results in a revisit cost and an out of sequence visit cost, effectively adding another $43.32 to the cost of these sites. Sites with off peak water heating can reasonably be skipped due to the TOU moratorium and the lack of 2 element metering, however it does not seem prudent to skip panel replacement sites. Impaq considers a panel replacement rate of 5 per cent to be more appropriate[33]"

An identical comment is made in respect of UED's Application[34].

11.3 AER draft decision

In the draft decision at D.4.4 the AER states:

"*The installation capex category refers to activities related to the AMI mass roll-out. The drivers for these activities include but are not limited to standard installation, panel rewiring, asbestos removal, neutral screen testing appointments and revisits. UED has forecast $27.9 million for this activity. UED calculates its forecast for this activity by:*

*Mass roll-out forecast activity = unit cost for the activity * volumes of*

[33] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, Section 5.2

[34] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, Section 8.2

*meters to be installed * percentage of expected incidence.*

The AER has reviewed this forecasting formula and considers that UED's assumptions for the percentage of expected incidences cannot be supported. In general, UED has not provided any statistical evidence to substantiate its claims that these assumptions are reflective of its operations. Specifically:

- *UED's incidences for panel replacement are substantially higher than other DNSPs and UED's practice of passing over panel replacements sites adds considerable additional costs with no demonstrated benefits*[35]*"*

The AER makes the same statement in respect of JEN's Application at D 5.2.[36]

11.4 JAM response

In response, UED and JEN refer to the response provided to the AER on the 6th of May 2011[37]

11.4.1 Panel Replacements

"*The percentages of Panel rewiring, panel replacements, revisits and NST appointments appear quite high. Where is the evidence of these levels?*

The percentages of panel replacements, panel rewires and asbestos are based on actual percentages experienced by the mass rollout program as at October 2010. These also take into account those sites that were skipped due to the program not being able to replace the damaged panel at the time. The actual percentages have been applied across the remainder of the program. The reason why the percentages are higher is that the "harder" panel replacements will not be revisited until post 1 January 2012, when only 50 per cent of the total meter base remains to be exchanged.

This in effect doubles the percentage in relation to the number of installs. Overall, the cost to the program remains the same. In relation to panel rewires, the percentage reflects the number of complex meter sites (or sites affected by the Time of Use moratorium) that will not commence exchanges until 1 January 2012, again resulting in a higher percentage of the install base. NST appointment data is based on actual NST appointments to date and extrapolated across the remaining meter base to be exchanged."

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[35] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, D 4.4

[36] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, D 5.2

[37] Email: "JEN AMI Budget and Charges Applications 2012-15: AMI follow up questions from Impaq consulting" to AER on 6 May 2011

Following the draft determination JAM has reconsidered the forecast rate of panel replacements and accepts the Impaq assessment that 5 per cent of panel replacements is more appropriate. JAM has therefore reforecast its rate according to the following summary of statistics of Actual and Forecast.

Table 11-1 Panel Replacement Actual (2009-2011) and Forecast (2011-2013)

Panel Replacement Forecast	2009 Actual	2010 Actual	2011 Q1+Q2 Actual	Total Actual	2011 Q3+Q4 Forecast (to 43%)	2012 Forecast (to 95%)	2013 Forecast (to 100%)	Total Actual + Forecast
UED Panel Replacements	37	405	301	743	674	27,554	2,649	31,620
UED MRO Installs	12,320	77,290	46,895	136,505	134,747	328,025	31,541	630,818
UED %	0.30%	0.52%	0.64%	0.54%	0.50%	8.40%	8.40%	5.0%
JEN Panel Replacements	20	125	95	240	328	13,250	1,274	15,167
JEN MRO Installs	11,716	32,358	20,688	64,762	65,678	157,741	15,167	303,349
JEN %	0.17%	0.39%	0.46%	0.37%	0.50%	8.40%	8.40%	5.0%

In summary, the practice of skipping over panel replacements has moved the volume of panel replacements away from the earlier years of the rollout into the 2012 to 2013 period. In light of the actual panel replacement rate of 0.5 per cent to end of calendar year 2011, an annual rate of approximately 8.4 per cent is required in 2012 and 2013 to provide an average of 5 per cent for the overall period. The above model therefore corrects and restores the balance of panel replacements to 5 per cent.

It should be noted that skipping panel replacements is not incurring an additional revisit fee when returning to the route and therefore the overall cost of prioritising (selecting) classes of sites within a route does not impact the overall program cost. JAM therefore considers this approach to be prudent.

Table 11-2 Panel Replacement Rate – Original Submission

Panel replacement Rate	2010	2011	2012	2013
UED	0.39%	0.5%	10.10%	10.10%
JEN	0.52%	0.5%	10.10%	10.10%

Table 11-3 Panel Replacement Rate – Revised Proposal

Panel replacement Rate	2010	2011	2012	2013
UED	0.39%	0.5%	8.4%	8.4%
JEN	0.52%	0.5%	8.4%	8.4%

12 No Access / Refused Access

12.1 UED/JEN original budget application

12.1.1 Factors affecting the roll-out plan[38]

The expected rate of 'No Access' and associated revisits is above 16 per cent. This is based on current mass roll-out statistics for all meter exchange attempts ("No-Access" is defined as where an installer cannot gain access to install a meter).

12.2 Impaq review

12.2.1 Capital Expenditure – Installation (Mass Rollout)[39]

Impaq allege that in respect of the incidence of "No Access Letter", the AMI ISC (Industry Steering Committee) Dashboard, February 2011 shows that a cumulative proportion of no access is 4.67 per cent and refused access 1.63 per cent. The total of these is 6.3 per cent. Hence it is considered reasonable to use 6.3 per cent as the percentages of No Access Letters required.

12.3 AER draft decision

12.3.1 Installation (mass roll-out and truck support)[40]

The AER considers UED's assumptions for the percentage of expected incidences cannot be supported. In general the AER state that UED and JEN have not provided any statistical evidence to substantiate their claims that these assumptions are reflective of their operations. Specifically:

- *"For incident rates for no access letters, UED/JEN uses a rate of 100 per cent which is far in excess of the percentage of 6.3 per cent which is the industry-wide statistic provided in the recent Industry Steering Committee AMI deployment dashboard minutes."*

Based on the AER's assessment, the AER considers that UED and JEN's expenditure is a substantial departure from the commercial standard that a reasonable business would exercise in the circumstances as:

[38] AMI Budget Application 2012-15, Substantiation of Base Cost to Provide Regulated Services, 25 February 2011, Section 5.1.4

[39] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, Section 5.2 Capital Expenditure – Installation (Mass Rollout)

[40] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, D.4.4 United Energy and D.5.2 JEN Electricity Networks

- *"Assumptions regarding the incidence rate for no-access letters is above known statistics."*

12.4 JAM response

The No Access Rate is variable and can be attributed to community sentiment and public perception of smart meters within a given month. While No Access rates are low for 2009, marked swings are evident in the statistics with peaks in the order of 29 per cent and as high as 45 per cent for a given month.

The combined average of No Access rates for UED and JEN for the 2011 year to date is 16.5 per cent

No Access rates measure no-access and refusals experienced at the point of installation. No Access rates do not take into account refusals from customers via correspondence (phone or letter) ahead of any attempt to install an AMI meter. Refusals via correspondence are referred to as Exchange Refusals and are recorded in the MRO database and these sites are presently excluded from scheduling AMI installations.

Therefore, No Access statistics are a lagging indicator of what is being experienced in the field and Exchange Refusal is a leading indicator of what would occur should JAM schedule those installations.

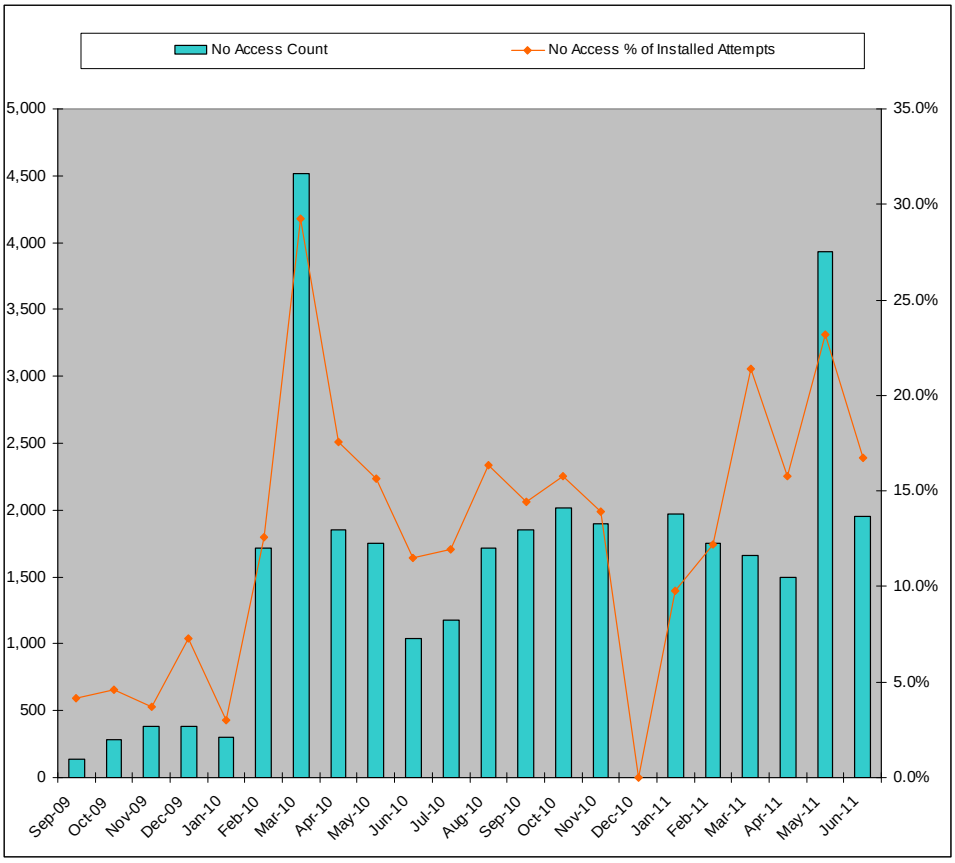
The statistics show a lumpy profile of No Access with broad swings and a general upwards trend. Overall the trend is consistent with the JAM forecast of 16.10 per cent in 2012. Further, the JAM model assumes that completing the last of the meter exchanges in 2013 will encounter 100 per cent No Access rates as all prior No Access customers will remain and maintain the same position for a subsequent or final installation attempt.

Table 12-1 No Access, Exchange Refusal Rates - Actual

	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Average YTD
UED MRO Installs	12,964	7,704	3,454	5,219	10,210	7,344	
UED No Access	1,583	1,339	1,092	1,009	3,212	1,561	
UED No Access %	10.88%	14.81%	24.02%	16.20%	23.93%	17.53%	17.90%
UED Exchange Refusal	322	1,027	252	251	1,153	2,191	
JEN MRO Installs	5,212	4,904	2,635	2,764	2,806	2,367	
JEN No Access	387	412	567	483	719	388	
JEN No Access %	6.91%	7.75%	17.71%	14.88%	20.40%	14.08%	13.62%

	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Average YTD
JEN Exchange Refusal	236	357	109	171	247	1,071	
Composite UED + JEN %	9.78%	12.19%	21.41%	15.75%	23.20%	16.72%	16.51%

Figure 12-1 No Access Trend



The high numbers of Exchange Refusals are continuing indicators that customers who are yet to have a meter installer attend the property are expected to manifest as a no-access factor on site at a later stage.

Without adequate Government support of the AMI program the No Access and Exchange refusal rates are forecast to continue to grow. No Access rates are expected to remain a factor through to the end of the program and the JAM forecast of 16.1 per cent (2012) and 100 per cent (2013) is considered realistic based on the present profile and customer sentiment to smart meters.

13 New Connections – BAU Meter Forecasts

13.1 UED/JEN original budget application

*"The Business-as-usual (**BAU**) metering program is responsible for installing and removing meters in response to requests from customers (via retailers) for new connections, additions and alterations. To date, this program has installed Accumulation and Manually Read Interval Meters where required, however from 2011, AMI meters will be installed progressively in place of these non-AMI meters. BAU metering will continue beyond the end of the AMI mass roll-out and is recognised as a business-as-usual function."*[41]

JEN has a total of 32,185 meters for the 2012 to 2015 period and UED has a total of 59,243 meters for the same period.[42]

"Business experience shows that under normal conditions the volume of BAU meter exchanges is relatively stable. In an average year, UED experiences approximately 12,000 to 14,000 meter exchanges per year. JEN experiences between 7,000 and 8,000 meter exchanges per year.

Drivers of these volumes are:

- *Requests for new connections driven be organic growth of network which brings new customers to the network (new estates)*
- *Request for new metering arrangements for existing sites, generally driven by housing improvements.*
- *Replacement of faulty assets (generally low volumes)."*[43]

The submission also explains the significant increase in meter exchanges for UED and JEN to support customers that install solar PV and that as the penetration of AMI meters grows there will be less need to exchange meters as the AMI meter can be remotely reprogrammed in the majority of cases.

[41] JEN AMI Budget Application 2012-15 Substantiation of Base Cost to Provide Regulated Services 25 February 2011 Section 5.2

[42] JEN AMI Budget Application 2012-15 Substantiation of Base Cost to Provide Regulated Services 25 February 2011 JEN – table 5-3; UED – table 5-4.

[43] JEN AMI Budget Application 2012-15 Substantiation of Base Cost to Provide Regulated Services 25 February 2011 Section 5.2

13.2 Impaq review

The Impaq report noted that the meter volumes required for BAU forecasts for new connections adds and alts exceeds the customer growth numbers.

This is based on:

"*The difference between the increase in meter numbers and the increase in customer numbers is due to abolishments and meter changes (eg: single phase to three phase). In these situations meters retrieved from abolishments can be re-used for new customer connections after the meters are re-verified. Prior to their being an AMI rollout most meters retrieved from abolishments or meter changes were not worth having recertified and then reused on another customers premise and were therefore scrapped. Hence additional new meters were purchased to meet the requirements for all new connections. However after the AMI rollout all installed meters are new meters and those removed from abolishments and meter changes are worth re-certifying and reusing.*"[44]

The Impaq report states that BAU installation costs are out of scope as they are ACSs.

Impaq also note that external antennas are installed on 100 per cent of BAU meters which contradicts UED's MRO where only 10 per cent of external antennas were to be used and that only 5 per cent of BAU sites should require external anntenas.

Impaq also note that a reverification cost needs to be included with a total cost of $247,000 for the period 2012 to 2015 for JEN. A total figure has not been given for UED however Impaq has assumed a rectification cost of $20 for each meter.[45]

13.3 AER draft decision

The Draft Determination noted that the meter volumes required for BAU forecasts for new connections adds and alts exceeds the customer growth numbers and have relied on Impaq's advice regarding the re-use of abolished meters.

The Draft Determination also noted that external antennas are installed on 100 per cent of BAU meters contradicts UED's MRO where only 10 per cent of external antennas were to be used.[46]

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[44] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, JEN - Section 5.3; UED Section 8.3

[45] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, JEN - Section 5.3; UED Section 8.3

[46] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, UED Section A.1.3 and D.4.5 and JEN Section D.5.3

13.4 JAM Response

JAM understands the basis of Impaq's findings and AER's position and accepts these as being correct in principle. However Impaq's analysis has overlooked certain details that have a material impact on the forecast and, accordingly, a more detailed forecast and explanation is provided below.

JAM can confirm that the volume of meters required for New Connections, Adds, Alts and Faults will be higher than the net customer growth estimate. Meter use will always be higher than net customer growth as not all events are covered by warranty including failure due to lightning, high voltage injection and accidental damage.

It also needs to be understood that Adds and Alts are at and continue to be at elevated levels due to the high number of meter exchanges for solar PV customers. This requirement alone exceeds the net customer growth requirement for meters.

However once the roll out is complete, which is scheduled for May 2013, the vast majority of removed AMI meters will be able to be reused. This will require those removed meters to be Verified (retested by a National Measurement Institute (NMI) authorised Verification test house) before they can be returned to service.

Verification will have an opex cost for one phase meters of [C-I-C] including the freight cost and for three phase meters a cost of [C-I-C] including the freight cost. These prices are from JEN and UED's AMI meter supplier, Secure.

The pricing for verification has not been competitively tendered. However the pricing is actually lower than the current supplier of this service for non AMI interval meters with the non-AMI prices having been recently competitively tendered. There are further efficiencies achieved by using Secure as meters that only require verification can be transported at no cost with meters that require warranty repair.

At this stage, JAM does not have an agreed price for verification of low voltage current transformer meters. Verification of LVCT meters amounts to less than 100 meters per year in total across UED and JEN. The cost for the LVCT verification has not been included in the UED or JEN budget submission.

The vast majority of non AMI meters that are removed and scrapped (recycled) due to age and it not being economically viable to reuse these meters.

The below table is a summary of JAM revised BAU meter numbers.

Table 13-1 BAU Meter Forecast Volume UED

New Connections/ Adds & Alts / Faults UED	2012	2013	2014	2015
AMI Meter				
Single Phase (1ph 1 element)	9,380	4,650	3,924	3,754
Single Phase off peak	451	64	0	0
Three Phase DC	2,336	1,327	1,177	1,127
Three Phase CT	138	80	70	67
	12,305	**6,121**	**5,171**	**4,948**
Non AMI Meter				
Accumulation Meter	823	109	0	0
Manually Read Interval Meter	815	58	0	0
	1,637	**167**	**0**	**0**
Total	**13,942**	**6,289**	**5,171**	**4,948**
Non Meter Volumes UED	**2012**	**2013**	**2014**	**2015**
Electronic 1 pole 30 amp time switch	388	0	0	**0**
Electronic 2 pole 50 amp time switch	36	0	0	**0**
CT's (Set x 3)	386	386	386	**386**

Table 13-2 BAU Meter Forecast Volume JEN

New Connections/ Adds & Alts / Faults JEN	2012	2013	2014	2015
AMI Meter				
Single Phase (1ph 1 element)	6,627	4,270	3,583	3,558
Single Phase off peak	68	10	0	0
Three Phase DC	1325	937	806	801
Three Phase CT	92	66	56	55
	8,112	**5,283**	**4,445**	**4,414**
Non AMI Meter				
Accumulation Meter	427	50	0	0
Manually Read Interval Meter	381	21	0	0
	808	**71**	**0**	**0**
Total	**8,919**	**5,354**	**4,445**	**4,414**
Non Meter Volumes JEN	**2012**	**2013**	**2014**	**2015**

New Connections/ Adds & Alts / Faults JEN	2012	2013	2014	2015
Electronic 1 pole 30 amp time switch	280	0	0	0
Electronic 2 pole 50 amp time switch	144	0	0	0
CT's (Set x 3)	204	206	206	206

The cost to replace a faulty meter must be included as it is not covered by any alternative control services charge.

The requirement to install external antennas on electricity meters is driven by the fact that metal meter boxes impede the transmitted and received radio signals. In particular where a meter in a metal meter box is to communicate with another meter also in a metal meter box the signal is impeded further. For this reason there is a policy to place external antennas on to ensure reliable communications with out over prescribing antenna installations.

Where a meter is deployed as a mass roll - out meter exchange meters are installed along existing meter reading routes and meters are typically 10s of linear meters apart. Under these circumstances it is possible to place antennas at a ratio of 1 in 10 as each antenna site becomes a pseudo relay to the other 10. However this is the only time that such a low ratio can be used.

Where advanced meters are deployed as new connections for BAU metering, these meters are always installed in a metal meter box, and in most cases not within a mass roll - out area. Any new connection meter will typically be greater than 100 linear meters from a viable communicating meter, relay or AP until the meter rollout is near complete. Therefore a policy to deploy external antennas for all new connections was put in place for 2011 and 2012.

When mass roll - out approaches completion, it is forecast that the 100 per cent BAU external antenna policy can be relaxed. It is expected that this will occur in 2013 and continue post roll – out.

For infill new connections the 10 per cent antenna forecast used for the MRO is appropriate.

For new estates the buildings will be staggered and built over time. However meter connectivity is required from the date of the initial building. Accordingly, for new estates a high density of antennas will be required during the development phase until the building and corresponding meter density increases. In new estates it is forecast that 30 per cent of new connections will require antennas.

Table 13-3 External Antenna Forecast

External Antenna Placement on Metal Boxes	2012	2013	2014	2015
Mass Rollout Area's	10%	10%	-	-
New Connections (BAU)	100%	30%	30%	30%

As new connections are deployed as one offs and not a contiguous rollout of adjacent meters, and to ensure that each BAU meter communicates, all BAU meter installs in 2011 and 2012 are to be fitted with an external antenna. This policy impacts the minority of meters installed in 2012 and equates to less than a 1 per cent increment of the total meter population that will receive an external antenna.

Should this not be allowed, the resulting cost of field investigation and a truck return visit to install a small number of skipped external antennas far exceeds the benefits gained from reducing the BAU external antenna install placement rate at time of install.

Accordingly, JAM maintains that in 2012 100 per cent of new connections will require an external antenna and concede that this can be revised down from 2013 to 2015 to a forecast of 30 per cent of new connections that will require an external antenna.

14 External Antenna Allowance

14.1 UED and JEN original budget application

Both the UED and JEN submissions include an allowance for external antennas to be installed with 10 per cent Mass Roll - out meters as well as 100 per cent of New Connections (notwithstanding the adjustment to reduce to 30 per cent BAU in 2013 onwards).

14.2 AER draft decision

14.2.1 Omission of all antennas from financial model

Whilst not stated by the AER Draft Determination Documents, the Draft Determination templates appear to exclude all Mass Rollout external antennas for both UED and JEN in the Mass Rollout capex figures.

14.3 JAM Response

14.3.1 External Antennas are required

The requirement to install external antennas on electricity meters is driven by the fact that metal meter boxes impede the transmitted and received radio signal. The AMI service levels require a percentage of all AMI meters to be installed in metal meter boxes.

JAM requests that the AER review its financial model and ensure that the allowance specified by UED and JEN is correctly carried into the Final Determination outcome.

15 AMI Technology and Communications

15.1 UED and JEN original budget application

15.1.1 Testing for systems and infrastructure

"Any change to IT systems or supporting infrastructure requires regression and functional testing to ensure compliance with the Victorian AMI Functionality Specification, maintenance of business continuity, and compliance with regulatory obligations. Forecast expenditure for this activity has been included in the cost outline for each project."[47]

15.1.2 AMI technology

"Most activities relating to AMI technology procurement and selection were completed during the initial AMI budget period 2009-2011.

AMI technology activities over the subsequent AMI budget period largely relate to the management, acceptance and deployment of vendor releases for the chosen AMI technology. In addition, some activity will relate to the continued development of the overall AMI technology strategy and roadmap.

Work will continue over the technology lifecycles to secure the benefits of AMI technology maturing and avoid obsolete and unsupported assets. To achieve this, the AMI technology will undergo an annual release upgrade with minor releases scheduled for 2012, 2014 and 2015, and a major release scheduled for 2013.

Under the terms of the existing LAN contract, new releases are provided and included within the contract cost. However once each release is received by UED and JEN , it requires thorough testing to ensure it is defect-free, and compliant with the Victorian AMI Functionality Specification and all other relevant regulation prior to its deployment into a production environment. The AMI technology team will manage this task, with additional resources brought on to assist as required. JAM will procure these additional resources in accordance with Jemena's Recruitment and Selection Policy and procedures." [48]

15.1.3 Testing for new releases of NMS and AMI communications

"AMI introduces a number of new functions into the business. The AMI technology test lab supports the ongoing production and maintenance of AMI

[47] AMI Budget Application 2012-15, Substantiation of Base Cost to Provide Regulated Services, 25 February 2011, Section 13.3.1 –Testing for Systems and Infrastructure

[48] AMI Budget Application 2012-15, Substantiation of Base Cost to Provide Regulated Services, 25 February 2011, Section 11 - AMI Technology

meters and communications networks. Testing activities are required to ensure that updates provided by AMI vendors comply with the Victorian Functionality and Service levels specifications.

All forecast expenditure is to be considered prudent under the CROIC, and has been, or will be, committed to in accordance with the commercially reasonable but not the tendered procurement processes described in chapter 9." [49]

15.2 Impaq review

15.2.1 AMI Technology and Communications Capex

"Managing the AMI technology test lab for $1,172,000, which appears to be a JAM cost which is shared between JEN and UED as there is also an identical amount in the UED submission. Hence the real total cost is $2,350,000. It is presumed that this is the factory unit in Mt Waverley /Notting Hill which was used by JAM to undertake extensive bench testing of AMI technologies during the time JAM was undertaking technology trials before making a selection of AMI technology to rollout out. It is considered that this lab is likely to be quite underutilised now that all the AMI testing preliminary to rollout has been done. It is expect that the Lab would be infrequently used in relation to tests of major and minor releases of SSN software or Secure Meters software/firmware. Impaq's view is that this cost should be reduced to half its current level and reviewed in the EDPR for the 2016 to 2020 period to see whether such a capability is still required. Hence the Impaq assessed cost is $585,000 over the period."[50]

The Impaq report implies an equivalent recommendation for UED which it has correctly identified as having an equal share of the AMI Technology Test Lab however all of the Impaq cost reductions are applied exclusively to JEN's costs.

15.3 AER draft decision

15.3.1 AMI technology and communications

"The AMI technology and communications category refers to activities such as the purchase of APs and relays, the management of AMI technology test labs, software and firm ware upgrades and batteries replacements. JEN has requested $3.7 million for AMI technology and communications in the subsequent budget period.

The AER has reviewed the information provided by JEN to support the expenditure forecast associated with this activity. The AER considers that JEN's

[49] AMI Budget Application 2012-15, Substantiation of Base Cost to Provide Regulated Services, 25 February 2011, Section 11.2.5 – Testing for new releases of NMS and AMI communications

[50] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, JEN - Section 5.4

*resourcing requirements appears to be more relevant to what might be expected in the initial setup phase to ramp-up systems, processes and resources for project implementation, than for a late stage in a roll-out where it would be expected that these levels would decrease into BAU (**BAU**) levels.*

Specifically, on JEN's AMI technology test labs expenditure, the AER considers that a prudent business in the circumstances would have already conducted numerous tests 3 years into the roll-out period.

Furthermore, the AER has not received any information from JEN to suggest that it is not compliant with the revised Order and therefore it can be assumed that the meters are working well and a need for testing should be lower than the initial phase of the roll-out where the technology was untried.

As discussed in C.1.1 another component of AMI technology and communications expenditure appears to be for network augmentation. The AER considers that network augmentation expenditure will be recovered under JEN's IT forecast expenditure, an allowance for which has been provided in this draft determination and is not likely to be incurred twice.

For these reasons the AER considers it appropriate that the commercial standard against which JEN's expenditures can be assessed to determine whether it involves a substantial departure from a commercial standard is Impaq's advice based on its bottom-up build. In conducting its bottom up build, Impaq has taken into account the activities for expenditure outlined by JEN. This advice is set out in the table below."[51]

Table 15-1 Impaq conclusion on JEN's AMI technology and communications forecast[52]

Real 2011 $'000	2012	2013	2014	2015	Total
JEN Proposal	1,317	997	647	747	3,710
Impaq assessment	954	711	373	453	2,490

JAM notes that the Draft Determination does not make an equivalent ruling for UED which has an equal share of the AMI Technology Test Lab.

15.4 JAM response

Impaq and the AER have concluded that the AMI technology test lab is resourced for a development phase of the AMI Solution. However, this assertion is incorrect. The lab is resourced to the minimum level required to maintain a

[51] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, D.5.4

[52] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, D.5.4 AMI Technology and Communications Table D.34

viable testing environment for testing defect AMI technology releases. During the development phase of the project, the testing lab was resourced at a much higher level, peaking at the equivalent of 8 FTEs.

In the 2012-15 budget period, the AMI technology test lab will be staffed with a skeleton crew of only three core FTEs to maintain the quality assurance environments, test equipment, test systems, quality systems as well as supporting issues developing from operations and pre-production.

The AMI technology test lab develops and executes test cases, test sets and analyses test outcomes and documents results for;

- Advanced Meters (Smart Meters) with integrated RF Mesh communications
- AMI Local Area Network (LAN) equipment, APs and relays (repeaters).
- AMI Home Area Network (HAN) interfaces and devices (eg In Home Display)
- AMI Network Management Systems
- Associated Software and Diagnostic Tools
- Firmware and Software Releases
- Interfaces to upstream systems
- LAB Testing of Production Hardware Defects and Fault Investigations

JAM forecasts resource requirements for the test lab and scales the test team accordingly to achieve timely outcomes for scheduled releases. The test team is responsible for maintaining the physical test environments and test cases so that;

- The test labs are a safe working environment free of hazards at all times
- Test cases are relevant, efficient and consistent with the technical, regulatory and business requirements
- That test environments, equipment and systems are maintained in a state of operational readiness that reflect the production systems
- Production candidates are assured of quality and readiness for production release

AMI Technology releases can be broadly categorised in three classes being;

- Patches and Hot Fixes. Where a defect or issue is resolved by evaluating, testing and deploying a correction in a software, firmware or a configuration component as an ongoing operations by business as usual staff

- Minor Releases. Where one or more dot point release versions are evaluated, end to end tested, regression tested and deployed as a capex project by a project team made up of business as usual staff and supplemented by external specialist contractors.

- Major Releases. Where one or more full version numbered release are evaluated, integrated into upstream systems, end to end tested, regression tested and deployed as a capex project by a project team made up of business as usual staff and supplemented by external specialist contractors.

Each calendar year it is assumed that at least one major release for meters, WAN, LAN and NMS will require testing and would take up approximately 50 per cent of the lab's time and resources. Other activities involving minor releases and patches would take up the remaining capacity.

Each AMI Technology release cycle is made up of a delivery team with representatives from Strategy and Technology (subject matter experts), AMI Network Operations (end users), AMI Technology Test laboratory, the respective vendor(s), contract (vendor) managers, developers (as required), IT support, and change and release management. The scale of any given project dictates how the project is resourced by scaling up from the permanent staff to an effective delivery team.

15.4.1 AMI Technology Test lab

The following roles make up the majority of the AMI Technology Test Laboratory costs in the Financial Model

- AMI Test lab Manager – (1 person required, costs for this role are divided equally (UED 50 per cent/JEN 50 per cent). The person is required to:

  – Coordinate the day to day AMI Technology test team activities.

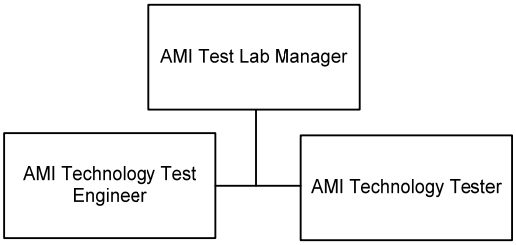
  – Ensure the test lab is a safe working environment free of hazards at all times (e.g. electrical and environmental Hazards)

  – ensure test cases are relevant, efficient and consistent with the technical, regulatory and business requirements

- maintain test environments, equipment and systems in a state of operational readiness that reflect the production systems
- ensure production candidates are assured of quality and readiness for production release

- AMI Technology Test Engineer – (1 person required, costs for this role are divided equally (UED 50 per cent/JEN 50 per cent). The person is required to:
  - maintain AMI test cases and scripts
  - maintain and develop automated test cases
  - supervise and execute test cases for AMI hardware, software, firmware and configurations (Meter, LAN, WAN, NMS & HAN)
  - assist meter testing, and support of warranty claims
  - investigate / test claims and issues arising from Operations
- AMI Technology Tester – (1 person required, costs for this role are divided equally (UED 50 per cent/JEN 50 per cent). The person is required to:
  - execute manual and automated test cases for AMI hardware, software, firmware and configurations (Meter, LAN, WAN, NMS & HAN)
  - assist meter testing, and support of warranty claims
  - maintain AMI test cases and scripts
  - maintain and develop automated test cases

Figure 15-1 Test Lab Organisation Structure



The AMI Technology Test laboratory is a shared function delivered by JAM where all costs are presently, and for the foreseeable future, divided equally between UED and JEN.

For the reasons above JAM considers that the AMI Technology test laboratory capital costs are prudent and should be approved as per the original JEN and UED budget applications.

16 IT infrastructure – Lifecycle replacement

16.1 UED/JEN original budget application

UED and JEN submitted costs in the subsequent budget period to perform life cycle replacement of IT infrastructure used to provide regulated services.

16.2 Impaq review

16.2.1 IT Infrastructure and Systems Capex (JEN)

"Impaq accepts that all these activities need to occur. However it noted that a large number of servers are scheduled to be replaced in the second half of 2015. Given the dual redundant systems architecture and the extensive use of blade servers it would appear that the replacement time for servers could be extended into 2016. Hence Impaq's assessment shifts the replacement of servers from 2015 to a later time. Impaq has priced the servers listed in the spreadsheet provided by JEN101 and considers that by deferring their replacement the reduction in cost is about $1.3M."[53]

16.2.2 Hardware - Life cycle replacement (UED)

"Impaq accepts that all these activities need to occur. However it noted that a large number of servers are scheduled to be replaced in the second half of 2015. Given the dual redundant systems architecture and the extensive use of blade servers it would appear that the replacement time for servers could be extended into 2016.Hence Impaq's assessment shifts the replacement of servers from 2015 to a later time. Impaq has priced the servers listed in the spreadsheet provided by UED272and considers that by deferring their replacement the reduction in cost is about $1.3M."[54]

16.3 AER draft decision

"The AER has reviewed the information provided by UED to support the expenditure forecast associated with this activity and has considered Impaq's advice. Similar to Impaq, the AER has assessed this expenditure as being necessary but considers that a commercial standard would be to review and assess whether some of the replacements can be deferred. In particular the AER considers:

[53] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, JEN - Section 5.4.1

[54] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, UED - Section 8.5.1

- *UED's IT systems can still be regarded as relatively new having been in service for 6 years by 2015 and having an expected life of at least 15 years*

- *UED's IT systems are designed to accommodate dual redundancy (exclude another system for disaster recovery). As all three systems are unlikely to all fail at once, the AER considers that a prudent business would consider progressively replacing these systems over time in order to moderate costs."*[55]

The AER makes the same finding in respect of JEN's submission.[56]

16.4 JAM response

The JAM substantiation document section 13.3.4 – Routine infrastructure lifecycle replacement programs - describes in some detail the JAM approach to IT infrastructure replacement programs. This approach is in line with industry best practice.

In relation to these costs both the AER and Impaq have accepted these as reasonable but, in their opinion the expenditure forecast for 2015, some $1.3 million for each business, should be deferred until sometime after 2015. These costs relate to a program of work that will commence in the later half of 2015 and will flow into 2016. The cost for each business for the 2015/2016 program is approximately $6.2 million in total.

JAM does not accept that further deferral of the orderly replacement of critical infrastructure is a responsible approach and introduces a risk of failure that, should it eventuate, would impede the businesses' ability to meet market obligations.

Furthermore, JAM believes that the proposed plan is responsible and aligns with practice followed by businesses with similar infrastructure requirements. JAM has sourced the standard lifecycle of the servers from Oracle (formally Sun micro systems).

[55] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, D.4.6

[56] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, D.5.5

Oracle reports the following Server Lifecycle of server hardware:

Table 16-1 Oracle Server Lifecycle Report

Server Type	Comments
X86	*Historically X86 servers have a lifespan of 3 years Most vendors, including Oracle, refresh the internal components every 18 months to 2 years. I.E. x4270 server became the x4270 M2 (new processors and memory to improve performance.*
T-Series	*Historically the T-series servers have a lifespan of 4-5 years* *Again the internals are usually upgraded every 2+ years* *But the chassis and architecture remains the same.*
M-Series	*Historically the M-series enterprise servers have a lifespan for 5-7 years. As with the other platforms the internal components are upgraded around the 2-3 year mark. I.E. E25k servers were released in 2004, went end of sale in late 2009.*

Please note with ALL Oracle servers the end of sale period isn't the end of its useful lifespan. After EOS the server is supported for 5 years. In essence this gives an X86 box around 6-7 years Very few customers retain x86 servers for this long because the software and processing requirements Exceed the server capability in around 3-4 years.

At a generic level you could assume most servers have a refresh cycle every 2 years with a lifespan of 3-5 years depending on the platform".[57]

UE and JEN also refer the AER to an International Data Group (IDG) customer research study[58] commissioned by Dell and published in February 2010. This reports a survey based on the response of US companies to a set of questions related to hardware upgrades. A key finding of this report is:

"Most respondents' organizations have a typical refresh cycle which is, on average, every 4.5 years.

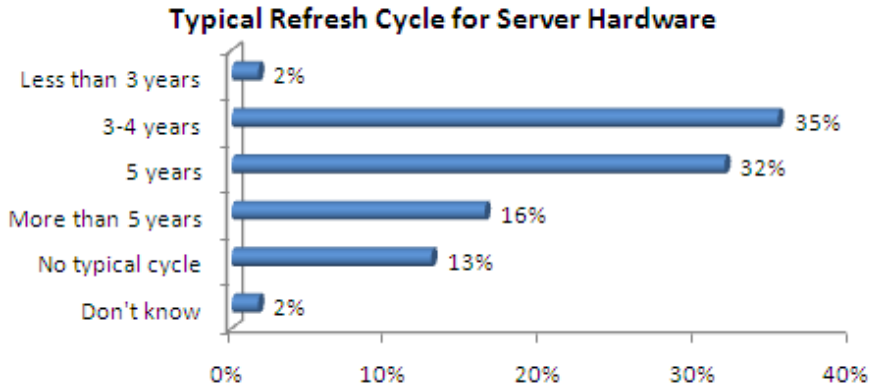
The majority of respondents (85 per cent) have a typical hardware refresh cycle. While one third of respondents say their refresh cycle occurs every 3-4 years (35 per cent) and one third say their refresh cycle occurs every 5 years (32 per cent), the average refresh cycle is 4.5 years. Thirteen per cent of respondents (13 per

[57] Oracle Server and Storage System Account manager email: Subject Lifespan and refresh cycles 11Aug2011

[58] IDG customer research study commissioned by Dell and published in February 2010

cent) have no typical refresh cycle and 2 per cent are unsure of their organizations' refresh cycle.

Figure 16-1 IDG Report - Typical Refresh Cycle Server Hardware

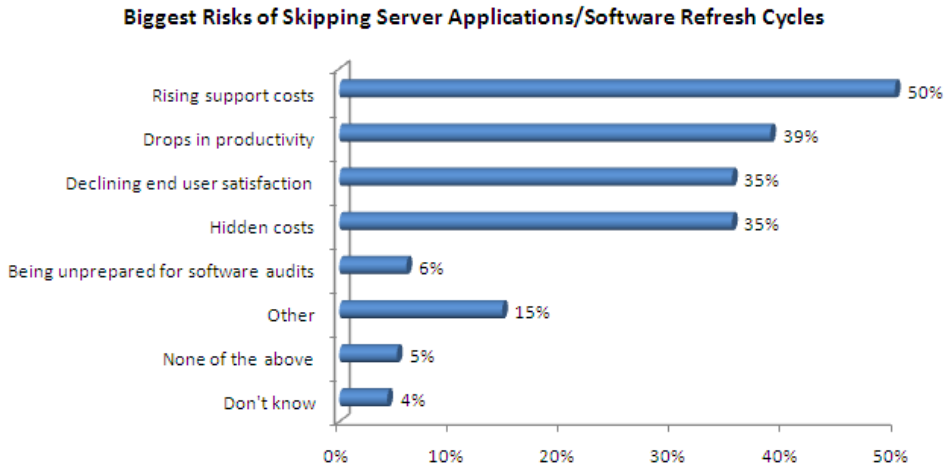


The same report also finds:

Almost all respondents acknowledge risks in skipping refresh cycles. Rising support costs tops the risk list.

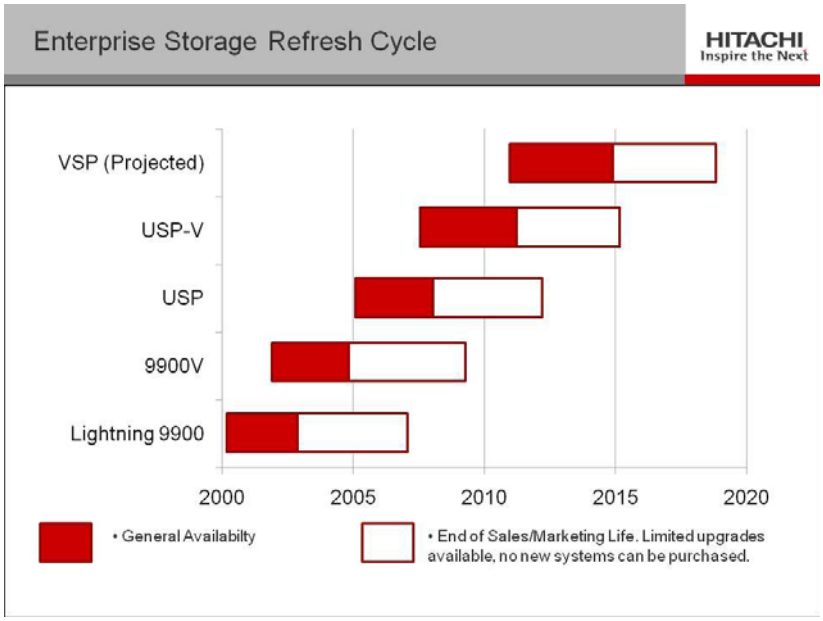
Although three quarters of respondents at least sometimes skip their refresh cycles, 90 per cent acknowledge that there are risks associated with skipping. Top risks include rising support costs (50 per cent), drops in productivity (39 per cent), hidden costs (35 per cent) and declining end user satisfaction (35 per cent).

Figure 16-2 IDG Report – Risk to Skipping Refresh Cycle



UED and JEN also refer the AER to the Hatachi Data Systems Storage refresh cycle paper[59] which describes the vendor recommendation for the lifecycle of the enterprise storage that UED and JEN have implemented as part of their AMI solution. Hatachi recommends that the USP-V grade data storage is at useful end of life by 2015.

Figure 16-3 Hitachi Enterprise Refresh Cycle



In regards to the piecemeal approach as suggested by the AER to the replacement program (i.e. replace different components at different times), a core principle of establishing a disaster recovery (DR) capabilities is that the DR systems replicate the productions systems. This principle ensures that business continuity is not compromised, that processes and systems operate in a DR environment as they would in the production environment. This is especially important when the businesses have regulatory obligations to meet, such as those introduced by AMI (i.e. 95 per cent of data delivered by 6am).

A piecemeal approach to replacing hardware would almost certainly breach this principle as newer infrastructure will operate differently to older technology. Having different infrastructure between production and DR environments will introduce different migration processes and is almost certain to add higher cost to maintain systems across the production and DR environments.

As the infrastructure in question for the 2015 replacement program will be nearly six years old by late 2015, the approach proposed by JAM in the original budget

[59] Hitachi Data Systems - SAN Enterprise Storage Refresh Cycle

is prudent. JAM therefore considers that the original budget proposal should be approved.

17 Asset Strategy and Planning

17.1 UED/JEN Submission - Asset Strategy and Planning

17.1.1 Managing metering and communications strategy

"AMI technology remains a relatively new technology, but is rapidly maturing as AMI experience grows both locally and internationally. This activity helps ensure that experience drives the strategy for managing AMI communications and metering assets. In this way, the activity reduces the risks of technology obsolescence, and ensures that, as technology evolves, a roadmap from the existing to the future remains available.

All forecast expenditure will be made in accordance with the procedures described in Chapter 9." [60]

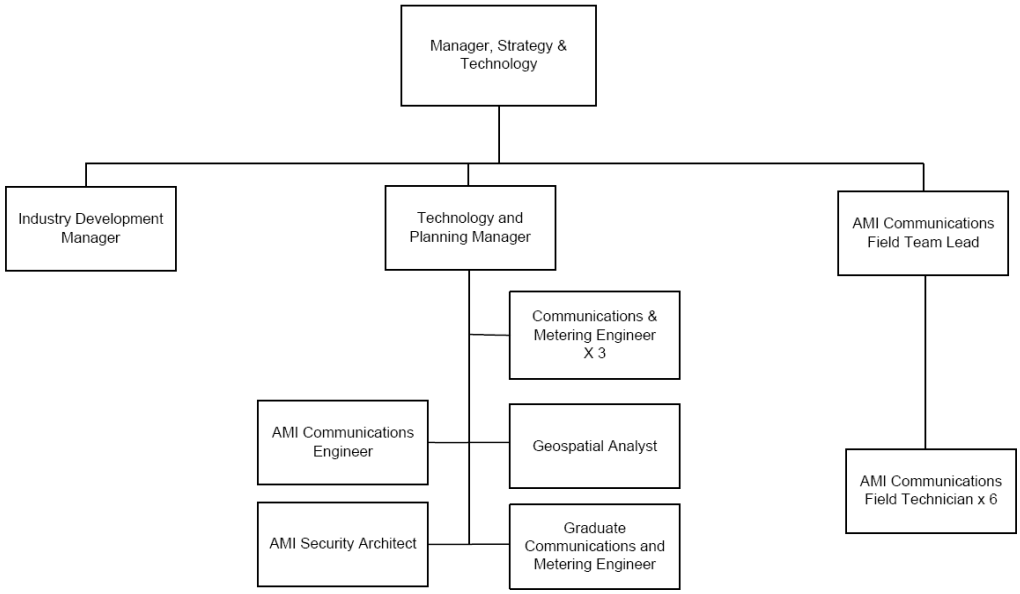
Asset Strategy and Planning relates to the strategic management of AMI Technology, the management of asset registers and developing the processes to ensure the efficient operation of the AMI communication network.

In addition to JEN and UED's Budget Application submissions, clarification was requested by AER and provided by JEN in letters dated 21 April, 16 May and 15 June 2011.

"Below is the organisation chart that shows the positions whose costs make up the asset strategy and planning costs in the financial model ("Financial Model") sent to the AER as Attachment 4 on 16 May 2011.

[60] AMI Budget Application 2012-15, Substantiation of Base Cost to Provide Regulated Services, 25 February 2011, Section 12.3.1 - Managing metering and communications strategy

Figure 17-1 Strategy & Planning Organisation Structure



17.1.2 Asset Strategy and Planning - Key assumptions

In determining the resource profile for the Asset Strategy and Planning group, the following key assumptions were made:

- *Security Certification – Ongoing monitoring and annual auditing of the AMI communication network will be required to maintain a necessary level of security certification.*
- *LAN Optimisation – The Metering and Communications team will be required to manage ongoing LAN optimisation and augmentation to ensure AMI network capacity and performance compliance.*
- *AMI Security Audit Remediation – Issues will emerge due to security and penetration audits which will require changes to systems and processes.*
- *Multiple Field Service Providers – In addition to work being performed by JAM Customer Service AMI Communication Team Lead, field work related to AMI communication equipment, meters, testing and revenue protection activities are assumed to be also performed by multiservice incumbent service providers such as Formway, JIS, Transfield and Select Solutions.*
- *Accelerated LAN Rollout – As the rollout of the AMI LAN and mesh grid will now be completed in March 2011, this model assumes that additional field technicians will be required to support the larger geographic areas.*

17.1.3 Roles in the Asset Strategy and Planning Group

The following roles make up the asset strategy and planning costs in the Financial Model:

- *National Manager, Strategy & Technology – (1 person required, costs for this role are divided based on network size (UED 68 per cent JEN 32 per cent). The person is required to:*
  - *manage AMI strategy, test lab and industry development teams*
  - *responsible for providing strategic planning and direction for the Plan group.*
- *Industry Development Manager – (1 person required, costs for this role are divided (UED 50 per cent JEN 50 per cent). The person is required to:*
  - *provide leadership and expertise on regulatory and compliance issues associated with electricity metering assets and equipment*
  - *provide regulatory analysis and support in respect of regulatory issues that have an impact on electricity metering, associated infrastructure and regulatory frameworks at both the national and state level*
  - *provide representation and monitoring of development and working groups including the National Smart Meter Program and Victorian AMI working groups*
  - *prepare submissions to, and negotiations with, regulators, governments and industry participants and stakeholders.*
- *AMI Technology Planning Manager – (1 person required, costs for this role are divided (UED 50 per cent JEN 50 per cent). The person is required to:*
  - *manage enterprise strategic planning activities*
  - *provide operational management of the AMI Technology Planning team*
  - *develop strategy for management of measurement assets for the asset owners including life-cycle management, technology roadmaps and release plans*

- *ensure that compliance with regulatory, industry and safety requirements is achieved in the design, application and management of and electrical measurement technology*

- *provide Technical Design and support of the AMI solution.*

- *AMI Security Architect – (1 person required, costs for this role are divided (UED 50 per cent JEN 50 per cent). The person is required to:*

  - *provide planning and governance to support an ISO 27001/2 Information Security Management System (ISMS) for compliance, and ensure ongoing stability of AMI communications network security and business continuity*

  - *ensure end-to-end security of the AMI system (e.g. Home Area Networks, Secure Mesh Radio, and Meter to Market)*

  - *provide strategic and tactical management of Information Technology security across the AMI environment; including policy development and compliance, security processes, security incident response, vulnerability analysis, risk compliance, identity and access management.*

  - *Manage security accreditation, audits, reviews and remediation activities.*

- *AMI Communication Engineer – (1 person required, costs for this role are divided (UED 50 per cent JEN 50 per cent). The person is required to:*

  - *maintain asset lifecycle management plans (LCMP) for AMI communication infrastructure assets including Mesh Radio Local Area Network (LAN), Meter Network Interface Cards(NIC), Backhaul Wide Area Network (WAN), Meter Home Area Network (HAN) Interfaces, and the AMI Network Management Systems (NMS)*

  - *analyse WAN/LAN capacity and performance, initiate optimisation and augmentation works*

  - *be a communications subject matter expert for MRO, operations, planning, regulatory and compliance*

  - *provide support for evolving HAN services (e.g. pilots and trials)*

- *performs research and provides a watching brief of upcoming communication technologies that may affect (adversely or otherwise) advanced metering infrastructure.*

- *AMI Geospatial Analyst – (1 person, role ends at end of rollout (2013), cost are divided (UED 50 per cent JEN 50 per cent). The person is required to:*

  - *provide and maintains geospatial AMI data records compiled from AMI, Legacy and GIS systems*

  - *provide visualisation and mapping data sets for MRO, AMI Network Operations, Planning, Optimisation and New Connections to ensure communication coverage across the networks can be maintained and AMI performance and service levels can be met*

  - *develop queries and code to support ad-hoc analysis of AMI Capacity, performance and coverage*

  - *support data integration with SAP ISU and Business Intelligence tool.*

- *Metering and Communications Engineer – (3 persons required, costs for this role are divided (UED 50 per cent JEN 50 per cent). They are required to:*

  - *provide asset management of the electricity metering and measurement systems including AMI Meters and legacy metering (non-AMI) and associated equipment or systems*

  - *Be responsible for the development of the strategy for management of measurement assets including metering asset management plans, life cycle management, technology roadmaps and release plans. Ensure that compliance with regulatory, industry and safety requirements is achieved in the design, application and management of and electrical measurement technology.*

  - *provide technical design and support of the AMI solution. Perform investigations of escalated measurement operational issues*

  - *review and approves metering equipment designs, configurations and firmware. Responsible for the planning and strategic development of metering technical standards*

- *prepare business cases, forecasts, conceptual papers, scopes of work and submissions.*

- *Graduate Communication and Metering Engineer – (1 person required, costs for this role are divided (UED 50 per cent JEN 50 per cent). The person is required to:*

  - *rotate throughout the SmartNet and Customer Service business unit, in order to build and retain cross-skilled core IP*

  - *provide succession planning for core IP to be retained.*

- *AMI Communications Field Team Lead – (1 person required, costs for this role are divided based on network size. (UED 68 per cent JEN 32 per cent). The person is required to:*

  - *manage and schedule AMI Communications Field Technicians*

  - *resolve escalations from the field technicians.*

- *AMI Communications Field Technicians– (6 persons required until May 2013, then 5 persons thereafter, costs for this role are divided based on network size. (UED 68 per cent JEN 32 per cent). They are required to:*

  - *diagnose and resolve AMI communication issues*

  - *perform maintenance on the AMI communication network*

  - *perform field based assessments for AMI communication equipment*

  - *provide field investigation of individual Meter faults and defects*

  - *investigate consumer enquiries into Smart Meter RF and EMF emissions".*[61]

Clarification was provided to the AER by UED in an email dated the 21st of April which is quoted below:

"The Managed Meter Assets category in the budget template consists of two areas:

- Asset Strategy and

[61] JEN letter to AER, 15 June 2011. Attachment 2, page 6

- Planning and Asset Operations.

....AMI introduces new functions to the business with the area of Asset management being one of the most affected. Prior to AMI management of meter assets was primarily concerned with meters in the field and producing asset management schemes. With the introduction AMI this scope has broadened to include communication networks and its integration with the AMI meter. Activities related to meter testing programs continue there will be a reduction in the number of families needing testing after the completion of the rollout however these activities represent approximately 1/3 of the cost in the Manage Meter Assets category. The remaining 2/3's of costs relate to managing AMI technology as a whole including validating vendor releases, overseeing communication network security including regular audits and penetration testing to ensure ISO 27001 accreditation is maintained, development of AMI technology roadmaps and strategies to protect the investment in the AMI infrastructure, network maintenance and augmentation programs and other AMI technology projects. This group also is responsible for field work related to fix-on- fail of AMI communications infrastructure."[62]

17.2 Impaq review

Impaq estimate that the JEN forecast represents approximately nine tertiary qualified FTE's that are likely to be telecommunications engineers.

They also express the view that validating vendor releases and managing major AMI technology releases are capital expenses and are covered in IT Capex and Communications Capex. Further the cost of AMI technology vendor management is included in the Service Delivery and Contact Management cost category.

Further Impaq state that the services, and hence costs, are shared between UED and JEN.

"The remainder of this category is fundamentally developing, maintaining and updating the expertise within the business on the latest advances and technologies, as well as updating the roadmap and AMI strategy accordingly. While Impaq accepts the need to ensure that JEN is abreast of the current developments and initiatives in respect of AMI, the technology that has been deployed in the form of meters, communications and IT systems is leading edge. Consequently, it is unlikely that there will be a need over the period for significant reviews of the current technology roadmaps or strategies.

[62] Email UED to AER ref No 20110420 and attachment 20110421 dated the 21 April 2011.

It is Impaq's view that the provision of this service for JEN will be sufficiently met with 1 FTE telecommunications engineer."[63]

Impaq make the same statements in respect of UED's submission and conclude by expressing the view that the provision of this service (asset strategy and planning), for UED will involve equivalent to 1.5 telecommunications engineers.[64]

17.3 AER draft decision

The Draft Determination reflects the advice provided by Impaq Consulting inclusive of a bottom up labour model and comparison against DNSP submission which estimates that UED and JEN require only one FTE each at $220k to provide this function and that.

- UED's forecast is 670 per cent above Impaq's bottom-up build
- JEN's forecast is 800 per cent above Impaq's bottom-up build
- the AMI technology is leading edge and proposing excessive resources to consider other AMI technology developments is not efficient
- the resourcing forecast is excessive given the nature of the tasks
- there appears to be duplications in UED's / JENs forecast with other capex and opex categories.

Accordingly, the AER adopted the asset strategy and planning costs based on Impaq's recommended revision and its recommended adjustment to UED and JEN's forecasts.[65]

17.4 JAM response

JAM submits that the scope for the asset strategy and planning function has not been fully understood by Impaq or the AER, and that the AER has not taken the clarifications provided into consideration. In addition, JAM believes that the bottom up labour model described by Impaq is invalid, unsupported by evidence and unreasonable.

The scope of this team includes the functions that were previously carried out under "BAU" as well as the new AMI functions. Hence this group should not be

[63] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, JEN - Section 5.6.1

[64] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, JEN - Section 8.9

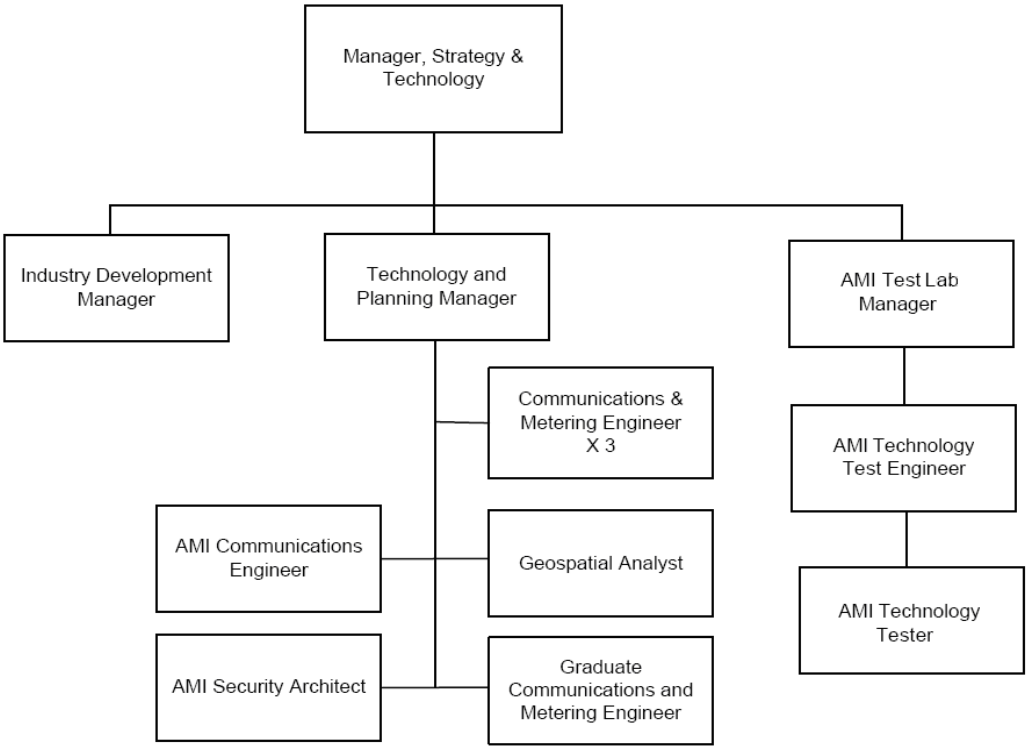
[65] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, UED – Section D.4.8 and JEN – Section D.5.7

categorised as only incremental for AMI which is what Impaq and AER appear to have assumed.

The ongoing management of the AMI associated functions are significant as are the BAU functions as detailed in the following and do not end with the conclusion of the AMI roll – out.

Further, the organisational structure, and consequently the financial model, have been revised from the organisational structure submitted in the original Budget Applications to reflect the current operating structure of the Asset Strategy and Planning Group. The revised organisational structure is represented below:

Figure 17-2 Strategy and Planning Organisation Structure



The key amendments relate to:

The apportionment of categories against resources in the original budget applications incorrectly placed the AMI Communications Field team within assets strategy and planning (6 Field Technicians plus 1 Field Technician Team Lead) which are AMI Network Operations Resources.

The apportionment of categories against resources in the original budget applications incorrectly placed the AMI Test Laboratory team within AMI Network Operations (1 Test Manager, 1 Test Engineer and 1 Tester), which are AMI Strategy and Planning Resources.

The revised model provided with the amended budget applications corrects this error and correctly places the Test Lab within AMI Strategy and Technology and AMI Field Technicians within AMI Network Operations.

17.4.1 Asset Strategy and Planning make up

The Asset Management and Planning Group is structured to provide a comprehensive and efficient function.

All positions in this group are shared on a 50:50 basis between UED and JEN.

The respective functions of the Group members are detailed below:

The Group is made up of an AMI Technology Planning Manager, AMI Security Architect, AMI communications Engineer, three Metering and Communications Engineers, Graduate Communications and Metering Engineer and AMI Geospatial Analyst (2012 and 2013 only).

The Test Lab has been reinstated into the correct model category allocation against AMI Strategy and Planning and includes the AMI Test Lab Manager and AMI Technology Test Engineer and AMI Tester.

In the same structure depicted above, the Industry Development Manager and the Manager, Strategy & Technology costs are allocated to the Stakeholder Relations and Management categories respectively. However their function is included here for completeness.

AMI Security Architect (also known as AMI Security Compliance Manager): is responsible for maintenance compliance of the ISO27001 security accreditation which was explicitly established for the AMI Technology Meter to Network Management System. AMI technology can be regarded as critical infrastructure and an equal to Supervisory Control and Data Acquisitions (SCADA) systems being one of the most critical of distribution management systems. As such AMI Security is regarded as a vital ongoing and evolving part of the AMI infrastructure and includes costs for activities like annual Security and Penetration Audit costs, security remediation activities and external audit costs.

National Manager, Strategy & Technology: Is a senior manager role overseeing resources for AMI strategy, AMI Test lab and Industry Development teams. It should be noted that the Manager Strategy & Technology is recovered within the Management category and not the Asset Strategy and Planning category.

Industry Development Manager: Provides leadership and expertise on regulatory and compliance issues associated with electricity metering assets and equipment at both the national and state level. Provides representation on, and monitoring of, development and working groups including the National Smart Meter Program and Victorian AMI working groups. Prepares technical

submissions to, and negotiations with, regulators, governments and industry participants and stakeholders. The industry development Manager works closely with the Technology Team and is the technical regulatory subject matter expert for metering and servicing. It should be noted that the Industry Development Manager is within the AMI Technology group, but the costs associated with this position are recovered within the Stakeholder Management category and not the Asset Strategy and Planning category.

Geospatial Analyst (2011-2013): Provides and maintains geospatial AMI data records compiled from AMI, Legacy and GIS systems. Provides visualisation and mapping data sets for MRO, AMI Network Operations, Planning Optimisation and New Connections. Maintains models of AMI Communications assets, relationships and associations. This role is active during the AMI rollout but is eliminated at rollout completion.

AMI Communication Engineer: Maintains asset lifecycle management plans (LCMP) for AMI communication WAN/LAN assets. Analyse WAN/LAN capacity and performance, initiates optimisation and augmentation works. Communications subject matter expert for MRO, operations, planning, regulatory and compliance. Supports evolving HAN services and undertakes research into upcoming communication technologies.

Metering and Communications Engineers (x3)

Originally there were two metering engineers (base). These positions have been expended to include the increased complexity of operating advanced meters e.g. the addition of the metering communication function. With the increased complexity an additional FTE was required to cover the extended scope of this role.

This role:

- provides asset management of electricity metering and measurement systems including AMI Meters and Legacy Metering (non-AMI), un-metered supplies and associated equipment or systems
- develops strategy for the management of measurement assets including metering asset management plans, life cycle management, technology roadmaps and release plans
- ensures that compliance with regulatory, industry and safety requirements is achieved in the design, application and management of and electrical measurement technology
- provides technical design and support of the AMI solution. Performs investigations of escalated measurement operational issues and reviews

and approves metering equipment designs, configurations and firmware. Implements planning and strategic development of metering technical standards, prepares business cases, forecasts, conceptual papers, scopes of works and submissions

- develops and maintains asset management plans for meters and metering transformers including researching and developing alternative strategies for approval by industry regulators
- develops technical specifications for purchase of meters and metering transformers and outworking of life cycle and meter asset management plans
- ensures policies and systems are in place to facilitate the maintenance of Meter Provider accreditation and develop and implement meter equipment policy including development of training for affected teams like New Connections
- manages technical issues associated with Meter Equipment and Communications supply contracts and develop budgets for metering and communications equipment including reforecasting
- undertakes regulatory technical and economic consultations including for AEMO, ESC, VESI, NMI, AER
- escalated complex customer Issues including EWOV and billing complaints and other technical queries
- expert representatives on industry groups with AEMO, National Measurement Institute and Standards Australia.

Graduate Engineer: Primarily employed to enable prudent succession planning and works across a number of areas before finally taking a permanent role in Asset Strategy and Planning. The graduate scheme includes rotations for the first 2 years and for this graduate there are up to 20 permanent positions related to AMI where the graduate could gain a permanent or interim longer term role at the end of their rotation program. The Jemena Graduate Development Program has been active for 10 years and maintains an annual intake of Electrical and Communications graduate engineers. As AMI Technology and Metering is a very narrow discipline in the resource market it is vital and prudent to develop graduates into skilled resources to support and replace staff that move within or outside of JAM.

AMI Technology and Planning Manager: Oversees the enterprise strategic planning and management of the AMI Technology Planning team.

AMI Test Lab Manager: Manages the AMI Technology testing team, equipment and systems.

AMI Technology Test Engineer: Maintains AMI test cases and scripts and develops automated test cases. Supervises and executes test cases for AMI hardware, software, firmware and configurations (Meter, LAN, WAN, NMS and HAN). Assist meter testing, and support of warranty claims.

AMI Technology Tester: Executes manual and automated test cases for AMI hardware, software, firmware and configurations (Meter, LAN, WAN, NMS and HAN). Assists meter testing, and support of warranty claims.

In addition, it should be noted that:

- The Network Management System (NMS) overall management is an additional function shared between the Metering and Communications Engineer and the Communications Engineer. Based on this, the incremental addition of one Metering and Communications Engineer that is shared across UED and JEN is justifiable.

- The Geospatial Analyst is a fixed term resource for the term of the rollout and this position is fundamental to the efficient management and analysis of the AMI rollout and is fully required due to AMI.

- The AMI Communications Engineer is the lead expert in managing the new communication networks overlayed on the existing distribution network across UED and JEN and is justifiable as a major scope change to BAU.

- The Security Architect is also justifiable to ensure security of the AMI systems is maintained and improved where required.

- The Graduate Engineer is a prudent investment in succession planning and retention of skills and knowledge within the business.

It is also important to note that all of the positions in the above structure have been filled or are in the final stages of recruitment.

The functions of the team are required for AMI as well as metering functions that existed prior to AMI with legacy metering equipment also being managed. Prior to AMI this group consisted of a manager plus two metering engineers shared across UED and JEN.

Due to the complexity of the AMI meters there is a greater workload than previously. The fact that all meters are electronic and have meter and communications firmware, as well as meter programs coupled with the inclusion

of mesh communications as well as the HAN interface, introduces a whole new level of complexity that was not present for most pre AMI meters.

In conclusion, JAM understands that the original base cost substantiation report did not adequately describe the Asset Strategy and Planning Function structure and composition. However, the clarification provided describes a comprehensive and balanced labour model required to provide prudent and effective strategic and technical management of the metering solution(s).

Accordingly, JAM considers that the original proposed base costs, (modified to include the above realignment of structure) are prudent and should be approved. To the extent that the AER considers that any of the above staff are not required, JAM would appreciate the AER providing specific guidance on which positions it considers redundant and how the requirements for the functions supported by those positions can otherwise be met.

Table 17-1 Asset Strategy & Planning – Original (May) Proposal

Real 2011 $'000	2012	2013	2014	2015
UED	1,297	1,320	1,427	1,392
JEN	1,659	1,666	1,784	1,756

Table 17-2 Asset Strategy & Planning – Revised Proposal

Real 2011 $'000	2012	2013	2014	2015
UED	990	1,013	1,045	1,068
JEN	990	1,013	1,045	1,068

Note a reciprocal step change is present in AMI Network Operations to reflect the reallocation of staff accordingly and summarised in the tables below.

Table 17-3 AMI Network Operations – Original (May) Proposal

Real 2011 $'000	2012	2013	2014	2015
UED	1,002	1,036	1,058	1,091
JEN	559	583	591	613

Table 17-4 AMI Network Operations – Revised Proposal

Real 2011 $'000	2012	2013	2014	2015
UED	1,665	1,689	1,732	1,779
JEN	865	891	908	937

18 Asset Operations

18.1 UED/JEN original budget application

18.1.1 AMI asset operations - Asset maintenance and testing programs

"While the AMI roll-out continues, UED and JEN have obligations to continue regular testing of the meters installed in the field, in accordance with AEMO approved asset management plans. This includes both AMI and non-AMI metering. From 2012, AMI meters will be included in the testing sample programs. The expenditure in this category is for the management and planning to support the field activity. This is performed by in-house JAM staff. Recruitment of these staff has followed the JAM recruitment policies outlined in Chapter 9." [66]

In the financial model there is one manager plus two field operations managers shared between UED and JEN. This is almost the same as pre AMI and has only been boosted by half of the manager.[67]

18.1.2 Asset Operations Clarifications

Clarification was provided to the AER by JEN in letters dated 21 April and 10 May 2011 exert below:

"Prior to the introduction of AMI, the management of meter assets was primarily concerned with managing meters in the field, ensuring compliance with various obligations and the activities related to meter testing programs. With the introduction of AMI, this scope has broadened to include the AMI communication network and its integration with the AMI meters in the field. Activities related to meter testing programs continue for the non-AMI meters up until the end of the rollout and for the AMI meters that have been (or will be) deployed. JEN will see a reduction in the number of families needing testing after the completion of the rollout, however an annual program of testing will continue.

Management of the meter fleets represents approximately one third of the cost in the Manage Meter Assets category. The remaining two thirds of costs, which relate to managing AMI technology, are attributed to AMI Strategy and Planning.

This includes costs related to:

[66] AMI Budget Application 2012-15, Substantiation of Base Cost to Provide Regulated Services, 25 February 2011, Section 12.3.3 - Asset Operations, Asset maintenance and testing programs

[67] Advanced Metering Infrastructure Roll-out Subsequent Budget Application from JEN Electricity Networks (Vic) Limited 28 Feb 11 Table 5-7 Page 34. UED AMI Budget Application 2012 – 2015 Table 3 Page 22.

- *validating vendor releases,*
- *overseeing communication network security (including regular audits and penetration testing to ensure ISO 27001 accreditation is maintained),*
- *developing AMI technology roadmaps and strategies (to protect the investment in the AMI infrastructure and to determine cost effective paths to transition to newer technologies in the future)*
- *network maintenance and augmentation programs*
- *managing major AMI technology releases, and*
- *AMI technology vendor management.*

The AMI Strategy and Planning group is also responsible for field work related to repairing AMI communications infrastructure that fails in the field and includes the costs of performing the field activities related to JEN family testing programs." [68]

18.2 Impaq review

18.2.1 Impaq review of JEN.

The JEN metering services agreement with SpAusNet excludes AMI and includes services which pertain to Alternative Control Services and installations above 160MWhr per year.

"Based on the requirements of the NER chapter 7 and the Metrology Procedure, there are four main activities required in relation to AMI metering and other metering for customers with consumption <160MWh pa:

- *Testing of meters in service;*
- *100 per cent testing of CT connected meters every 5 years (and the CTs);*
- *Audits of unmetered supplies; and*
- *Meter data validation."* [69]

[68] Email Clarification provided to the AER by UED in email ref No 20110420 and attachment 20110421 and dated 21 April.

[69] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, JEN - Section 5.6.2

"Impaq considers that a lower cost alternative would be to retrieve meters and test them in the laboratory, because then 10 to 20 meters can be tested at once. If a 10 head meter test bench (although many would be 20 head and hence quicker to test meters) is assumed and a testing time of 2.4 hours (which is generous for doing the 4 tests in table 1 of AS1284.13) the total testing time is less than 360 hours.

This translates to 0.25 FTE. Based on the top rate in the Hays Salary survey for an instrument technician[118], this equates to $68,234."[70]

18.2.2 Impaq's review for UED.

"This is little detail to support the proposed expenditure. Because of this Impaq has built up costs for the meter maintenance activities that it considers a DNSP would need to undertake and for which the costs are not recovered from other sources. Metering activities in relation to new connections and changes of metering are recovered as Alternative Control Services. Metering Provision for customers consuming >160MWh pa is a contestable activity and the costs are recovered from the responsible person that nominates a Metering Provider.

Based on the requirements of the NER chapter 7 and the Metrology Procedure, there are four main activities required in relation to AMI metering and other metering for customers with consumption <160MWh pa:

- *Testing of meters in service;*
- *100 per cent testing of CT connected meters every 5 years (and the CTs);*
- *Audits of unmetered supplies; and*
- *Meter data validation."*[71]

18.3 AER draft decision

18.3.1 AER draft decision for JEN

"The asset operations category relates to expenditure for the testing of meters already installed. JEN has requested $3.2 million for asset operations in the subsequent budget period.

The AER has reviewed the information provided by JEN to support the expenditure forecast associated with this activity. The AER considers that JEN

[70] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, JEN - Section 5.6.2

[71] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, UED - Section 8.10

has not demonstrated that the resourcing for this activity to be of a commercial standard as the number of tests resulting from the forecast expenditure is materially higher than the minimum requirements of Australian engineering standard AS1284 or JEN's other regulatory obligations."[72]

This is based on Impaq's assessment and adopts their cost of $1.899 million for JEN.

18.3.2 AER draft decision for UED

"Asset operations relates to expenditure for the testing of meters already installed. UED has requested $5.4 million for asset operations in the subsequent budget period.

The AER has reviewed the information provided by UED to support the expenditure forecast associated with this activity. The AER considers that UED has not demonstrated that the resourcing for this activity to be of a commercial standard as the number of tests resulting from the forecast expenditure is materially higher than the minimum requirements of Australian engineering standard AS1284 and UED's other regulatory obligations."[73]

18.4 JAM Response

JAM confirms that the volume estimates adopted by Impaq and the AER for sample testing of direct connected meters are in line with UED and JEN's current planning.

However the unit rates per test used by the AER are not in line with the competitively sourced contract pricing.

The cost for a single phase meter test is [C-I-C] and for 3 phase meters is [C-I-C] .

Similarly the cost to test a 3 phase CT connected meter is [C-I-C] and is significantly higher than that cost adopted by Impaq.

LVCT testing is not included in Table 29 of the Impaq report even though it is indicated in the text that this has been included. The competitively sourced pricing for testing LVCT's during normal hours is [C-I-C] per set of 3 and after hours [C-I-C]

The three resources allocated to this function (one Field Operations Manager and two Metering Project Managers) are the same as for pre-AMI across JEN

[72] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, JEN Section D.5.8

[73] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, UED Section D.4.9

and UED. Accordingly, there has been no incremental increase in resources due to AMI. Nor has there been an increase from the 2009-2011 budget previously approved as being prudent by the AER.

The work carried out by this team includes

- contractor management including field auditing, monitoring of testing programs, analysis and approval of field related work processes, Meter control
- tender specifications and assessments for field contracts
- manage meter equipment replacement programs
- front line for field meter issues
- assist with customer queries
- revenue protection
- monitoring of meter stock levels
- monitoring of day to day warranty issues
- assist with customer queries
- performing annual public lighting metrology audits.

The tables below provide a build up of the requirements for this function based on an exclusion of any Alternative Control Services or greater than 160 MWhr per year work.

Impaq's methodology of estimates volumes for testing is somewhat consistent with the AEMO approved Metering Asset Management Plans for UED and JEN. The reworked model below combines this methodology with the current competitively tender unit rates.

Also included is the Low Voltage Current Transformer (**LVCT**) testing that Impaq and the AER had not included in their build up of costs. It also should be noted that LVCT meter testing occurs in 2012 for BAU meters that have not been replaced. The annual Meter Provider Category B audit fee and field visits to locally download data from non communicating meters are other categories that Impaq and AER did not include in their build up of costs.

UED and JEN originally included LVCT testing based on a sample testing regime. However, in light of the AER letter regarding testing of instrument

transformers under Chapter 7 to all Responsible Persons[74] (**RP**) and the uncertainty around the acceptance of sample testing, full testing of LVCT's has now been included. This testing is based on the requirements of the National Electricity Rules and enables all outstanding LVCT sites to be tested, plus an allowance for sites that become due for test over the 2012 to 2015 period.

Impaq have suggested that JAM would be able to lower costs by removing meters for sample testing from service and batch testing them in a laboratory. This proposal is fundamentally flawed and appears to ignore the fact that such batching would require JEN and UED to install replacement meters at the same time as removing meters for testing (otherwise supply to the premise would not be maintained). Specifically, the proposal is flawed as:

- it does not account for the additional time on site to remove the meter required to be tested and the time to install a new meter asset. The time to carry out this meter exchange, including safety testing of the installation, approaches the time to actually carry out the test on site
- it does not account for the cost of supply a new meter and the market cost in updating JEN's asset registers, AEMO's market system and the retailers systems
- it does not quote a competitively tendered price that a National Association of Testing Authorities laboratory would charge that would need to include freight, labour that would include direct plus overheads for management and test equipment
- no asset life extension would be achieved for the removed meter as it was removed from service and not reinstated into the network in the same asset location
- redeploying the tested meter would require the revalidation of the meter and not just an accuracy test.

Thus it is difficult to understand how this proposal could provide a cost reduction.

JAM has in part accepted the AER and Impaq positions (in relation to volumes) and has updated the UED and JEN financial model for asset operations accordingly.

However, JAM has not accepted the proposed batching approach which is not considered practicable and considers that the amended budget, which is based on JAM's originally proposed approach, should be adopted.

The proposed budget outcomes are contained in the tables below.

[74] AER Letter to Responsible Persons, 13 July 2011; AER Reference: 45393-D11/2266274

Table 18-1 Sample Testing Budget JEN

[C-I-C]

Table 18-2 Sample Testing Budget UED

[C-I-C]

19 Customer Contact and Back Office

19.1 UED and JEN original budget application

In the substantiation of base costs to provide regulated services, JAM outlined the requirements for customer contact and back office resources for the purposes of:

- managing meter data
- managing service orders
- managing service desk
- managing faults and emergencies
- network metering connections. [75]

The budgets relating to these services are outlined in the table below.

Table 19-1 Customer Contact and Back Office Original Submission

Real 2011 $'000	2012	2013	2014	2015
JEN Customer Contact & Back Office	2,333	1,964	1,870	1,906
UED Customer Contact & Back Office	3,865	2,706	2,630	2,682

19.2 Impaq review (JEN/UED)

In the Impaq review[76], Impaq has estimated that the budget provided by UED and JEN corresponds to an average of 20.59 FTEs for JEN, and 30.27 FTEs for UED, being an aggregated total of 50.86 FTEs.

Impaq has provided the following additional assessments on the customer contact and back office functionality:

19.2.1 Manage Meter Data (JEN & UED)

It is Impaq's view that the Meter Data Management System (MDMS) and Meter Management System (MMS) will fully automate the activity of collecting and

[75] AMI Budget Application 2012-2015, Substantiation of Base Cost to Provide Regulated Services, JAM (6) Pty Ltd, 25 February 2011, Section 12.2.2, pp. 102 - 103.

[76] Impaq Consulting, Australian Energy Regulator, Review of DNSPs AMI Budget Submissions for 2012 to 2015, Version 2.2, 20 July 2011, JEN Section 5.6.3 and UED Section 8.11

verifying data from AMI meters. The vast majority, if not all, of the processing of the data, including validation, estimation and substitution will also be automated. It will only be a very small number of exceptional situations that will require manual intervention.

Impaq is therefore of the view that a staff of:

JEN = 1 FTE in 2012 reducing to 0.5 FTE in 2015 will be sufficient for this activity.

UED = 2 FTE in 2012 reducing to 1 FTE in 2015 will be sufficient for this activity.

19.2.2 Service Desk (JEN & UED)

Impaq accepts that JEN and UED are required to provide data to retailers when appropriate and valid requests are made. However, the relevant meter and metering installation data will be available to retailers from MSATS. With the implementation of daily interval data for all meters, retailers will receive current information or consumption and will therefore not need to make as many ad hoc requests for information.

Retailer requests pertaining to new connections or meter changes are covered by Alternative Control Services and are out of scope.

Hence a vast majority of market participants' requests for data are either provided automatically anyway or are in relation to areas covered by Alternative Control Services.

Impaq is of the view that a staff of:

JEN = 1 FTE in 2012 reducing to 0.5 FTE in 2015 will be sufficient for this activity.

UED = 1 FTE in 2012 reducing to 0.5 FTE in 2015 will be sufficient for this activity.

19.2.3 Faults and Emergencies

Impaq has determined that Faults and Emergency activities are already picked up under AMI Network Operations functions.

In line with the above conclusions, Impaq believes the Customer Contact and Back Office budget should be as in the table below.

Table 19-2 Customer Contact and Back Office Impaq View

$,000	2012	2013	2014	2015	Total
UED	400	410	280	280	1,370
JEN	311	317	227	231	1,086

19.3 AER draft decision (UED/JEN)

In line with the Impaq review, the AER has proposed a budget for both JEN and UED[77].

The AER considers that JEN and UED's customer contact and back office expenditure is a substantial departure from the commercial standard that a reasonable business would exercise in the circumstances as:

- JEN's forecast is 640 per cent above Impaq's bottom up build
- UED's forecast is 590 per cent above Impaq's bottom up build
- The activities proposed do not meet the standard with respect to the level of automation of data processing required in the AMI functionality specification.

Table 19-3 AER draft determination on JEN & UED budget for 2012

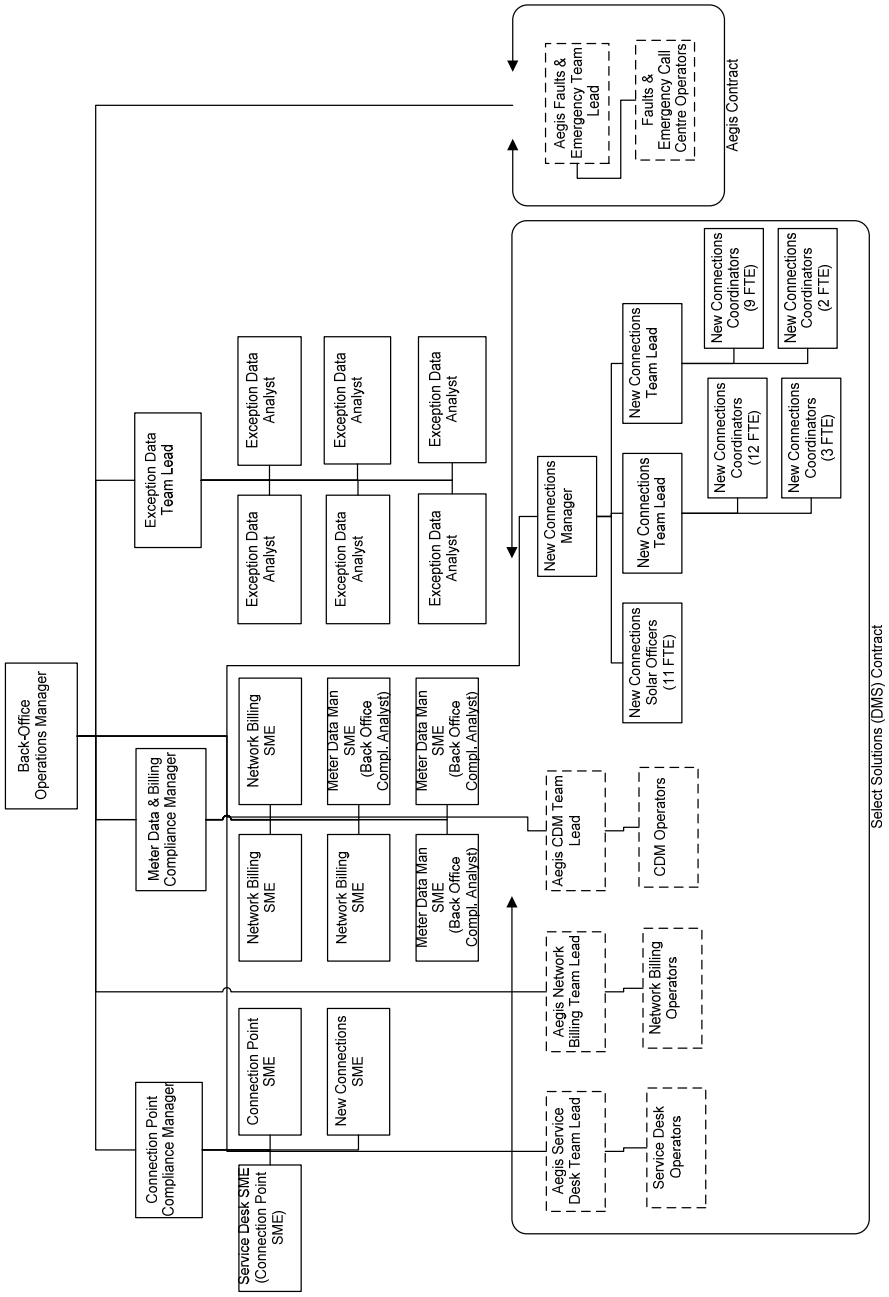
$,000	2012	2013	2014	2015
UED	400	410	280	280
JEN	311	317	227	231

19.4 JAM response

JAM submits the following back office organisation chart for reference and summary of positions in the JAM organisational unit.

[77] AER Draft Determination, Victorian Advanced Metering Infrastructure Review, 2012 2015 budget and charges applications, 28 July 2011, pp. 131-133 (UED), pp. 155-156 (JEN).

Figure 19-1 Customer Contact and Back Office Organisation Structure



Based on this structure, the table below provides a breakdown of the number of roles that existed prior to the implementation of AMI, and the number of roles created or changed as a result of the AMI Program.

Table 19-4 Customer Back Office New and Changed Roles

SNACS Team	Existing roles No Scope Change	Existing Roles with Scope Change	New Roles Created as a result of AMI	New Roles Created to comply with obligations (PFIT)
Back Office Operations (Market Ops)	-	12	7	-
New Connections (External)	-	24	5	11

As this table demonstrates, there were 36 roles within the Back Office and New Connections teams responsible for managing tasks associated with legacy systems and process, and only 12 new roles created as a result of the implementation of AMI.

As outlined in Section 3.1 JAM AMI Transitional Model, and as approved by the AER in the previous submission[78], JAM has implemented an operating model which ensures a cost effective and low risk approach to business transition, which includes the implementation of the new AMI systems in parallel with existing legacy systems and processes, and managing the transition from legacy to AMI from 2010 (when AMI systems went live) to the end of 2013 when the AMI mass rollout project is completed.

The majority of costs that have been removed by the AER from the UED and JEN budgets relate directly the management of the legacy systems and processes during this period.

The charts below provide additional information on the types and volumes of back office and customer contact activities currently being undertaken by the back office team in respect of legacy systems only (i.e., this does not include any exception management tasks currently being undertaken in AMI systems).

[78] AMI Budget Application 2009 – 2011, Substantiation of Base Costs to Provide Regulated Services, Report prepared by Alinta Asset Management Pty Ltd for JEN Electricity Networks and United Energy Distribution, 26 February 2009, Chapter 14, pp. 111-116.

Figure 19-2 Consumption Data Management Monthly Activities (UED)

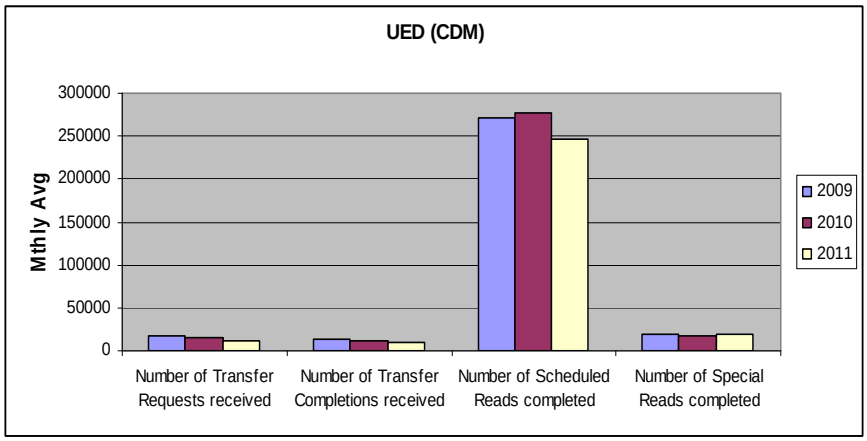


Figure 19-3 Service Desk Monthly Transactions (UED)

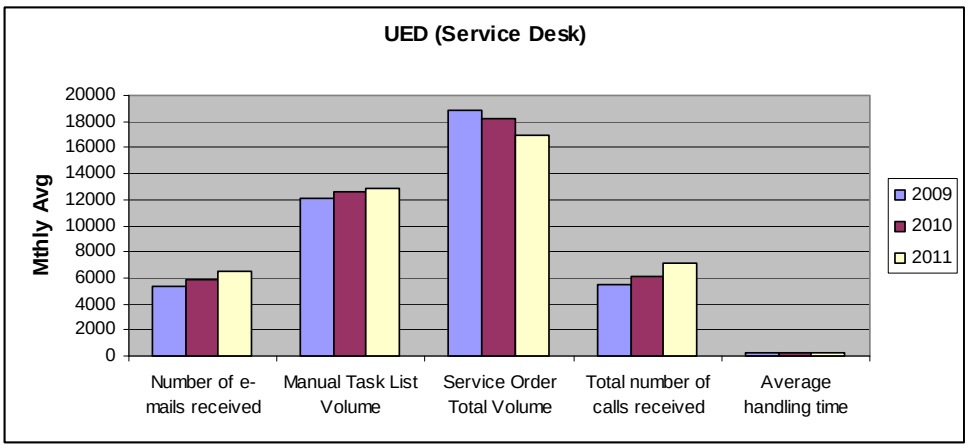


Figure 19-4 Consumption Data Management Monthly Activities (JEN)

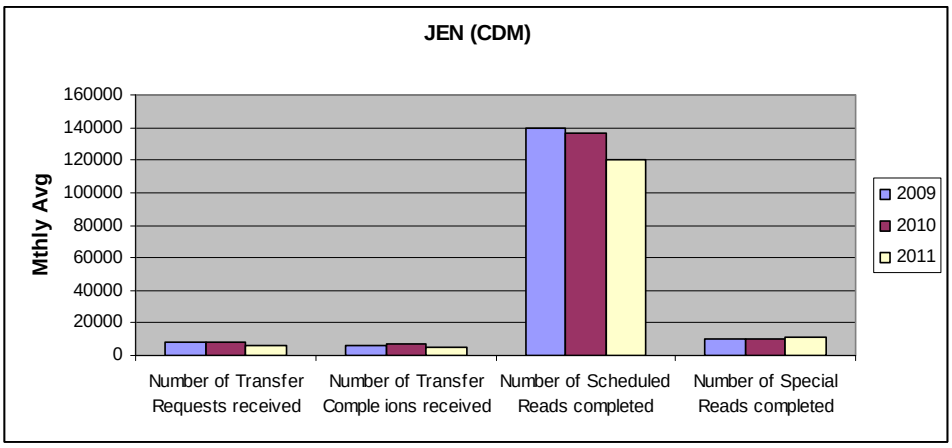
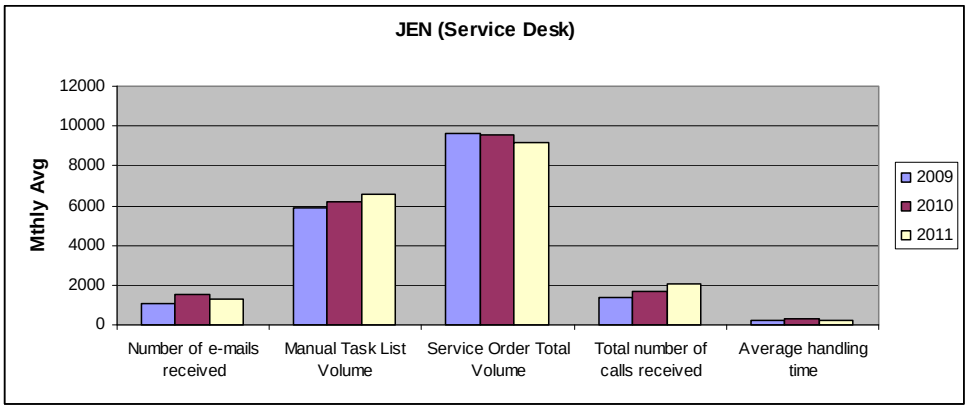


Figure 19-5 Service Desk Monthly Transactions (JEN)



These charts demonstrate that in most situations the amount of work being carried out by the back office and customer contact teams (CDM, Service Desk and New Connections) has remained consistent since 2009, prior to the implementation of AMI, and, in some cases, the volume of tasks requiring significant manual involvement has actually increased.

As an example, the number of calls received by the Service Desk team has gone from an average of 5,500 calls per month in 2009 to 7,000 calls per month in 2011 (representing a 27 per cent increase in workload) as a result of the number of increased calls by retailers relating to AMI queries.

Further, AER's proposed reduction of the budgets for customer contact and back office will result in JAM being unable to continue to manage its obligations in legacy metering, and in particular will result in UED and JEN becoming non-compliant as a Meter Data Provider (**MDP**) and Meter Provider B (**MPB**) in the National Electricity Market and result in significant regulatory breaches against the National Electricity Rules and service levels.

Within the original submissions of both UED and JEN, the number of additional staff required to manage AMI tasks for both asset owners totals 12 staff as follows:

- 6 Data Exception Analysts – 3 for Consumption Data Management and 3 for Network Billing
- 1 Data Exception Team Leader for management of escalated issues
- 5 New Connections Co-ordinators.

It should be noted that the costs for three of the Data Exception Analysts are already excluded from the original budget submissions for both UED and JEN as these tasks relate to network billing and these costs are apportioned standard control services.

Also, the additional New Connections Coordinators are required only during the transitional period to the end of 2013 when there is an additional 20 per cent workload as these staff work in both legacy and AMI systems.

Further, in its draft determination, the AER noted that, "*another component of customer contact and back office expenditure appears to be for faults and emergency responses will be covered under UED's [JEN's] AMI network operations expenditure…. and is not likely to be incurred twice.*"[79]

It should also be noted that any costs associated with managing faults and emergency calls relating to AMI meters, are not the same tasks as undertaken by the field technicians in the AMI network operations team, and are not a duplication of costs.

Based on the above, JAM considers that the original proposed budget for Customer Contact and Back Office is justified and prudent. JAM considers that the Impaq review and the subsequent AER determination has not taken into consideration the extensive work required to manage legacy systems by only considering a bottom-up build that focuses solely on AMI activities and ignoring existing legacy metering activities.

Table 19-5 Customer Contact and Back Office Original (May) Proposal

Real 2011 $'000	2012	2013	2014	2015
JEN Customer Contact & Back Office	2,333	1,964	1,870	1,906
UED Customer Contact & Back Office	3,865	2,706	2,630	2,682

As indicated in section 4.2 of this document Customer Contact and Back office forecast is directly impacted by meter exchange forecasts. Table 19-6 adjusts the UED and JEN submitted costs in accordance with the revised meter installation forecast as well as correcting a formula error in the JAM model which incorrectly apportioned a single Exception Data Analyst.

Table 19-6 Customer Contact and Back Office Revised Proposal

Real 2011 $'000	2012	2013	2014	2015
JEN Customer Contact & Back Office	2,428	1,940	1,839	1,873
UED Customer Contact & Back Office	3,901	2,604	2,562	2,612

[79] AER Draft Determination, Victorian Advanced Metering Infrastructure Review, 2012 2015 budget and charges applications, 28 July 2011, p. 132 (UED), p. 155 (JEN).

20 Backhaul Communications

20.1 UED/JEN original budget application

20.1.1 AMI Backhaul Communications Submission

This expenditure relates to telecommunications charges for the backhaul from the data concentrators to JEN's and UED's respective network management systems. These are also referred to as wide area network or WAN charges.

In 2008, the joint program competitively tendered for these services. The contract was subsequently awarded to Telstra. [80]

Table 20-1 Backhaul Communications Original (May) Submission

Real 2011 $'000	2012	2013	2014	2015
UED	502	515	521	526
JEN	269	282	287	293

20.2 Impaq review

20.2.1 AMI Backhaul Communications

Based on the information in the Budget templates it is assumed that there is a total of about 100 (JEN) / 203 (UED) APs to cover the JEN area. This gives about 3200 meters per AP. The amount of data per day per meter is 1272 bytes of payload. It is assumed that there would be a maximum of 18kB per meter each day taking into account communications overheads and communications for reasons other than meter reading. For an AP this is 55Mb per day or 20GB per annum.

At a retail level Telstra charges $60/month for this amount of data and it is known that other DNSPs pay about $20/month. Assuming $20/month per AP it is Impaq's view that $24,000 (JEN) and $48,720 (UED) per annum would be sufficient. [81]

[80] AMI Budget Application 2012-15, Substantiation of Base Cost to Provide Regulated Services, 25 February 2011, Section 12.2.3 - AMI Backhaul Communications

[81] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, JEN Section 5.6.7 and UED Section 8.15

20.3 AER draft decision

20.3.1 Backhaul communication – competitive tender

UED and JEN have entered into a contract with one communications provider for backhaul communications from data concentrators to the network management systems. JAM has provided the AER with a probity report and other documentation which details the process leading up to the award of the contract.

The AER has not accepted that UED and JEN's contract for backhaul communication was let in accordance with a competitive tendering process. [82]

20.3.2 AMI backhaul communication - commercial standard

AMI backhaul communication relates to expenditure to get AMI data to UED / JEN's networks. JEN has requested $1.2 million, UED has requested $2.1million for the provision of this activity.

In considering a commercial standard for this expenditure the AER has assumed that:

- an AP receives 20 GB of data per annum,
- an internet service provider would charge $20 per month for this amount of data and JEN has 100 and UED has 203 APs,
- the total for this expenditure would equate to approximately $24,000 (JEN) / $49,000 (UED) per annum.

The AER therefore considers JEN's forecast of $1.1 million for 4 years to be a substantial departure from a commercial standard of around $100,000 for this period.

The AER therefore also considers UED's forecast of $2.1 million for 4 years to be a substantial departure from a commercial standard of around $200,000 for this period.

Accordingly, the AER approved costs based on Impaq's recommended revision to expenditure and its recommended adjustment to JEN and UED's forecasts of AMI backhaul communication costs for 2012-2015 which the AER considers reflect the commercial standard. [83]

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[82] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, JEN Section D.5.10 and UED Section D.4.11

[83] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, JEN Section D.5.10 and UED Section/ D.4.11

20.4 JAM response

JAM maintains that expenditure relating to telecommunications charges for the backhaul from the data concentrators to JEN and UED's respective network management systems has been competitively tendered and represent a competitive rate as at the time of the tendering process in 2008.

JAM acknowledges that the rates and plans accepted as competitive with the provider in 2008 are higher than what would be obtained in the current market. JAM therefore accepts that an adjustment in costs is required to return to an acceptable market rate.

JAM notes, however, that even the adjusted forecast expenditure incurred would be considerably higher than that proposed by Impaq and the AER as:

- The actual monthly data for a given AP is regularly over 3GB per month and, in some cases, approaching 5GB per month and that all AP plans should be set according to the worst month to ensure that a plan is not overrun and incurring exceptional data usage and cost.
- The bottom up data volume build proposed by Impaq is simplistic in that it only allows for a single block of data per day containing only interval data. Real world data includes event logs, multiple reads per day, management traffic, regular network diagnostics, configuration management, firmware downloads, data overheads, retries and the like. Thus, the bottom up build model does not reflect the observable reality that is demonstrated by actual measured monthly data volumes.
- The Backhaul charges include provision for a virtual private network and not access to the Internet, as assumed by Impaq. As AMI data is considered private and regarded as critical infrastructure for security purposes, the entire AMI backhaul is built on a virtual private network within the telecommunication provider using Multi Protocol Label Switching (MPLS) technology.
- For each distribution business, telecommunications provider provisions a virtual network cloud with primary and secondary wide area fixed line links in the primary and secondary data centres.
- For each distribution business, the telecommunications service provider provisions a virtual authentication service to ensure only permitted connections are able to be established.
- Development, Quality Assurance and Test systems also use APs

- Provider 3G SIM Cards and the volumes of SIM cards are higher than the volumes suggested by Impaq and increase over time with network growth, network augmentation and optimisation.

- The volume of SIM cards for the respective AMI UED and JEN telecommunications provider accounts are not high enough to allow for group accounts and group data plans to be established. Therefore, the rates for JEN and UED are similar to retail rates. For comparison, each SIM card service is equivalent to a mobile computing data plan, an account holding 100 or 200 SIM cards is consider by Telstra to be a relatively small account and does not attract exceptional pricing. Actual Pricing per AP is $5 SIM Service fee plus a [C-I-C] 5GB Data Plan or [C-I-C] /Month for 5GB. The initial submitted rate of [C-I-C] per SIM is the equivalent plan in 2008 terms. Despite making enquiries, JAM is not aware of a plan for a premium grade telecommunications provider at $20/month for 5GB of data. JAM also notes that Impaq did not provide a source for its claim of a $20/month plan.

Accordingly, JAM has amended its proposed base cost budget to take into consideration the change in wireless data plans currently available and revised its per unit rate for APs to [C-I-C] per service per month, which is representative of the actual and demonstrable costs.

Table 20-2 AMI Backhaul Communications Costs – Original (May) Proposal

Real 2011 $'000	2012	2013	2014	2015
UED	502	515	521	526
JEN	269	282	287	293

Table 20-3 AMI Backhaul Communications Costs – Revised Proposal

Real 2011 $'000	2012	2013	2014	2015
UED	239	245	245	245
JEN	137	144	144	144

21 Finance and HR

21.1 UED and JEN original budget application

21.1.1 "Finance & HR - Manage joint program finance

This function relates to financial activities for regulated services including:

- *ensuring consistency and maintenance of financial reference data and asset management data*
- *managing and paying installation service and meter providers for both the AMI roll-out and as a result of retailer requests*
- *preparing financial reporting for accounts payable and reconciling acceptance certificates in preparation of payment to installation service vendors*
- *managing remittances and payments for the mass roll-out program and other vendor contracts*
- *providing monthly reporting on expenditure to UED and JEN including actual and forecasts for upcoming periods."*[84]

21.2 Impaq review

In respect of JEN's budget application, Impaq concludes that:

"Thus, it appears that this cost category consists of

- *the management of the financial asset register;*
- *the payment of contractors; and*
- *monthly reporting*

The financial asset register is automatically updated as work is completed and charged for. Human intervention is only necessary to provide reporting and to investigate anomalies. The new automated systems and the JEN financial systems should be sufficiently accurate that 1 FTE for 3 days per month, or 0.18 FTEs will be all that is necessary to meet this task

[84] AMI Budget Application 2012-2015, Substantiation of Base Cost to Provide Regulated Services, JAM (6) Pty Ltd, 25 February 2011, Section 12.3.7 – Finance & HR, Manage joint program finance

There are only a small number of contractors involved in the AMI program that would provide monthly invoices. Systems are in place to provide supporting information, such as meters delivered, installations completed to requirements, etc.

This activity should be sufficiently met by 1 FTE for 10 days per month, or 0.6 FTEs for the year.

The preparation of monthly reports, given the new automated systems that have been installed, should be sufficiently met with 1 FTE for 3 days per month, or 0.18 FTEs for the year.

In total, Impaq believes that 1 FTE would be sufficient for this cost category."[85]

Impaq makes the same findings in respect of UED's budget application.[86]

21.3 AER draft decision

The AER Draft Determination states:

"The finance and HR category relates to expenditure for financial and human resources management. UED/ JEN has requested $2.5 million /$1.2 million for the provision of these services.

In reviewing the information provided by UED/ JEN, the AER considers that:

- *the small number of contracts would suggest limited inputs and outputs for financial processing and reporting*
- *core AMI installation services are contracted out to external providers and as such the AER does not see the benefit of employing 2 management accountants and numerous other finance staff to provide costing advice on already contracted costs.*

Having considered UED/JEN's response on the assumptions it had used for its forecast, the AER has therefore concluded that UED/JEN's forecast of finance and HR costs for 2012-15 does not meet the commercial standard test because the level of resourcing requirements are excessive compared to the number of transactions involved, the corresponding reporting requirements for these transactions and the minimal level of financial advice required for already contracted expenditure.

[85] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, JEN Section 5.6.9 Finance & HR

[86] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, UED Section 8.17

As such, the AER considers that the Impaq assessment represents and bottom-up build to be the commercial standard. This advice is set out below.

Table D.41 Impaq's conclusion on JEN's finance and HR costs ($,000 real 2011)

$,000s real 2011	2012	2013	2014	2015	Total
Contract Cost – competitive tender	*0*	*0*	*0*	*0*	*0*
Other	*339*	*290*	*265*	*271*	*1,166*
Total	*339*	*290*	*265*	*271*	*1,166*
FTE's	*3.1*	*2.59*	*2.31*	*2.31*	*2.58*
Impaq view – FTE's	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
Impaq view Cost	*110*	*112*	*115*	*117*	*454*

Based on the above information, the AER considers UED/JEN's finance and HR expenditure is a substantial departure from the commercial standard that a reasonable business would exercise in the circumstances as:

A) JEN's forecast is 60 per cent above Impaq's bottom-up build

B) the resourcing forecast is excessive given the nature of the tasks.

Accordingly, the AER has approved the costs set out in Table D.44.270. These costs are based on Impaq's recommended revision to expenditure and its recommended adjustment to UED/JEN's forecasts of finance and HR costs for 2012-2015 which the AER considers reflect the commercial standard."[87]

***Table D.26 Impaq conclusion on finance and HR ($,million real 2011)* - UED**

$,million real 2011	2012	2013	2014	2015	Total
UED Forecast	*0.7*	*0.6*	*0.6*	*0.6*	*2.5*
Equiv. FTE's	*6.4*	*5.4*	*5.2*	*5.1*	*5.5*
FTP Impaq	*1*	*1*	*1*	*1*	*1*
Impaq view – FTE's	*0.1*	*0.1*	*0.1*	*0.1*	*0.5*

The AER has therefore assessed that UED's finance and HR expenditure is a substantial departure from the commercial standard that a reasonable business would exercise in the circumstances as:

- *UED's forecast is 500 per cent above Impaq's bottom-up build*

[87] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, JEN Section D.5.11- Finance & HR

- *the resourcing forecast is excessive given the nature of the tasks.*

Accordingly, the AER has approved the costs set out in Table D.29. These costs are based on Impaq's recommended revision to expenditure and its recommended adjustment to UED's forecasts of finance and HR costs for 2012-2015 which the AER considers reflect the commercial standard. [88]

21.4 JAM response

21.4.1 Finance

In response to the AER assessment, JAM asserts that the Finance and HR functions are vital for effective management of a program of the scale of the AMI roll–out and its subsequent operation. The bottom up build from Impaq is not accurate and as a consequence the AER has been misinformed as to the scope and importance of these roles.

In support of the UED and JEN submission JAM has provided further detail and clarification of the FTEs employed in this category. It should be noted that the organisational structure, and consequently the financial model, have been revised from the organisational structure submitted in the original Budget Applications to reflect the current operating structure of the Asset Strategy and Planning Group.

Impaq's view is that the finance role is limited to three separate functions being the management of a financial register, payment of contractors and monthly reporting.

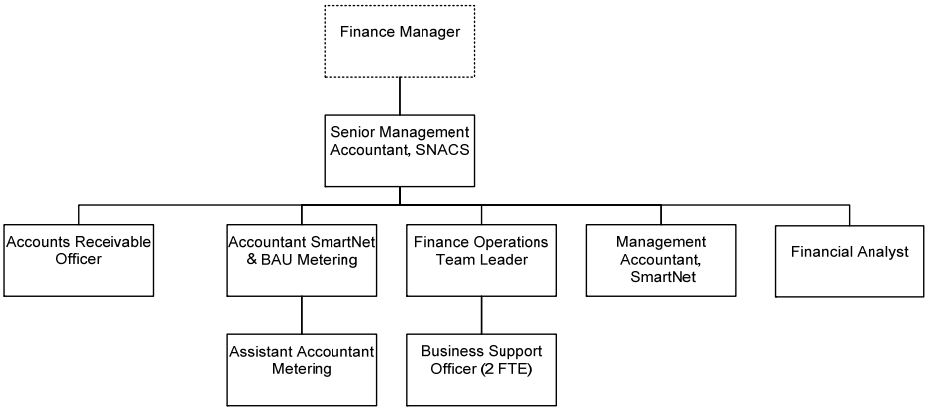
All roles, unless otherwise indicated, are focused solely on activities that relate to metering services. The position descriptions provided below clearly show that the scope is far broader than that described by Impaq.

It should be noted that this service is a common and shared function provided by JAM and that roles are apportioned according to volume of work between UED and JEN. All roles are apportioned according to network size (68:32 split) between UED and JEN.

JAM submits the following AMI Finance team organisation chart for reference and summary of positions.

[88] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, UED Section D.4.13 - Finance & HR

Figure 21-1 AMI Finance Organisation Structure



The Financial model incorporates the following roles for the Finance / HR resourcing.

Finance Operations Team Leader

- Provides financial support for the SmartNet management team under the guidance of the Finance Manager.
- Manage the BSO functions and direct activities as per the AMI program requirements.
- Asset Owner AMI Program Billing and Revenues determination.
- 50 per cent apportioned to CROIC.

Management Accountant, SmartNet

- Consolidates and reports on the AMI Program metering results and conducts variance analysis to budget and forecast and works with the relevant Asset Owner to advise on commercial outcomes.
- Maintains finance master data and ensures that SAP tools maintain and track all AMI transactions. A full review and actions the weekly reconciliation reports to be produced.
- Key contact for all AMI queries and involved in preparation of cashflow reporting and setting up of hedging arrangements for all AMI related purchases with overseas vendors.
- Engages cost capture activities in order to ensure accurate and methodical reporting of the AMI program costs against the correct SAP costing elements.

- 100 per cent apportioned to CROIC with all activities related around the AMI rollout.

Business Support Officer X 2

- To provide administration support to the SNACS finance and accounting team under the guidance of the SNACS Senior Management Accountant in validation, administration and reconciliation of timesheets and vendor invoices surrounding the AMI program.

- 50 per cent of the associated cost is apportioned to AMI as the role also supports Business as Usual and other programs within the company.

Financial Analyst

- Key liaison for all enquiries relating to the financial model for the AMI Program.

- Responsible for updating and providing the AMI models to UED and JEN asset owners.

- Compilation of data for regulatory account purposes for the AMI program.

- To provide financial scenario modelling to support management decision making.

- 100 per cent apportioned to CROIC.

Accountant, Metering

- To provide 100 per cent Finance and Accounting support for a Profit and Loss perspective for AMI SmartNet metering management in terms of Revenues and cost captures.

- Monthly management accounting – profit centre financial stewardship, variance analysis, reporting for AMI.

- Monthly AMI meter reconciliation of Meter Roll Out data to SAP ledgers.

- Assists with the processing and reporting of AMI Program Delivery and assists with development of cost recovery for ongoing AMI Smart Meter operational costs.

- 100 per cent apportioned to CROIC.

Senior Management Accountant, ie (Finance Support Manager)

- Responsible for (but not limited to) providing both strategic and commercial support and financial stewardship to the SmartNet & Customer Service (SNACS) / AMI Program business unit.

- Provides strategic and commercial support and financial stewardship to the AMI & Back Office business unit. The role will be responsible for providing financial and commercial support in managing this function and managing all relevant alliance relationships with respect to AMI & Back Office:

  – key “go to” point for AMI operational accounting queries.

  – AMI Treasury liaison and reporting to Asset Owners.

  – review the monthly performance of AMI and provides a health check of the business to ensure financial commitments are deliverable. This Includes variance analysis and reporting.

  – ensures the integrity of the financial data and lead the continuous improvement program for the accounting systems, their feeder systems and processes for the ultimate aim of providing timely and accurate financial information.

  – responsible for validating AMI Program invoices, ensuring the integrity of amounts payable and ongoing management of vendor contractual payments to ensure no contractual arrangements are breached.

  – capitalisation of AMI WIP – providing accurate Asset Details as per Asset Owner Capitalisation Policies.

  – day-to-day management of seven (7) AMI Finance team members.

  – key AMI Programme liaison point for internal and external audit queries.

  – key liaison point for all auditor activities relating to AMI – regulatory & statutory.

  – the role did not exist prior to June 2011. It is required and justified as a result of the complexities surrounding the AMI finance rollout and to meet the requirement for a direct manager to lead the finance team. 50 percent of the cost of this role is apportioned to AMI and this role is ongoing following the completion of the rollout.

Assistant Accountant, Metering

- supports the Metering Accountant with relevant AMI meter rollout databases to ensure accurate cost capture and reporting to support MRO.
- 100 per cent apportioned to CROIC.

Accounts Receivable Officer

- manages retailer remittances and payments.
- manages the reconciliation of retailer remittances and invoices across both AMI and legacy systems during AMI Mass Rollout.

21.4.2 Role of the Finance Team

Finance has a specific role in the management and transactional elements directly relating to the rollout of the smart meter program. Outside the scope of any normal finance function, the AMI Finance team is involved but not limited to the following functions that are required to manage the meter rollout.

- complying with the regulated meter rollout.
- working with various parties to comply with regular audits.
- managing overseas vendor invoices and hedging requirements and maintaining forecast cashflow positions.
- working with the meter rollout teams to capture all data and matching acceptance certificates to ensure rollout compliance.

Compared to the normal BAU metering requirements, the AMI program has specific reporting requirements and guidelines that must be followed. The Finance team has dedicated considerable time and resources to collating procedures and work instructions to ensure the roll –out protocol is followed and is compliant with regulatory and audit requirements.

Finance is a critical function in managing a new metering and communications network. It cannot be assumed to disapear at the conclusion of the roll-out. Whilst certain functions will decline (or stop) at the conclusion of the roll-out certain functions and the associated costs are fixed and will continue.

21.4.3 Finance Automation

The AER draft determination assumes automation of certain workflows and business processes.

Whilst the AMI solution is highly automated, it does not automate every process and procedure as has been incorrectly assumed by Impaq. In particular the financial functions all require manual reconciliation of all transactions to ensure the integrity of the asset registers and accuracy of all accounting records.

For example:

a. the Asset Register is automatically updated as meter delivery manifest files are loaded into the asset management system at the point of goods receipting in the warehouse. Following the meter installation the meters they are recognised as a network asset and cost and asset registers are updated and reconciled as a manual process. i.e. raw data imports are automated whereas verification is a manual activity.

b. during the transitional period (2009-2013) both the new AMI connection point management systems and legacy systems are in operating in parallel. The duplication of these systems during the parallel run period (2009-2013) requires additional manual work-arounds to be in place to provide a single view of all metering (AMI and non-AMI).

Impaq and the AER have vastly overestimated the financial system automation associated with the AMI Program. JAM believes that the Impaq assessment on the extent of automation for finance and asset management is incorrect and should be disregarded in its entirety.

JAM believes that the AER Determination is incorrect based on the following;

- The finance functions include base metering finance roles that existed before the AMI mandate and with the introduction of AMI the finance support requirements have increased significantly. Prior to AMI, the group consisted of a considerably smaller team and has had to adapt and grow with the increased accountability and service requirements directly related to the rollout and ongoing requirements beyond 2013.

- The number of employees submitted is supported and justified by the increased number of transactions and commercial requirements surrounding the program and, on this basis, both the number of resources and their respective levels are prudent and reasonable.

- Impaq fails to address additional functions that the Finance team provides which include, but are not limited to, the following:

  a) Providing financial modelling support and analysis for the forecasting, budgeting and regulatory submissions cycles; and

b) Strategic and commercial support to assist decision making processes required in providing metering services.

Support is provided with limited automated reporting tools. Reporting at this stage is limited to SAP, TMI and advanced excel models.

- The AMI program requires a role to maintain transactional activities related to the programs which have increased dramatically. As a result there has been additional focus on attending to queries surrounding contractor data.

- Whilst AMI has automated certain functions, many manual functions remain that are required to be managed by the Finance team.

- The AER fails to recognise that the AMI Finance function is a shared service provide to UED and JEN by JAM.

21.4.4 Human Resources

HR resources are required to support recruitment, attrition and performance management of the SNACs resources.

It appears that there has been no consideration of HR resources by Impaq. HR functions include maintaining and updating HR & IR policies and procedures, reviewing and establishing processes for ensuring key skilled personnel are made available, defining key roles and responsibilities, training and development activities and employee performance management.

As the JAM SNACs business unit contains between 150 to 180 FTEs at any given time, there is an absolute requirement to provide a HR function to all staff within the organisational unit.

JAM has as part of this review identified a calculation error in the financial model which in error excluded the cost of the single FTE HR role. This error has been corrected and the updated Finance and HR Budget category is in the table below.

Table 21-1 Summary of May and Revised Finance and HR Costs

Real 2011 $'000	2012	2013	2014	2015
JEN Finance & HR (May Submission)	339	290	265	271
JEN Finance & HR (This Submission)	376	328	304	311
UED Finance & HR (May Submission)	721	616	564	576
UED Finance & HR (This Submission)	777	673	622	636

In conclusion the Impaq assessment has completely ignored the need for a HR role. As the JAM SNACs business unit contains between 150 to 180 FTEs at any given time, there is an absolute requirement to provide a HR function to all staff within the organisation unit.

The JAM Submission includes one permanent FTE for the HR function to support the entire business unit servicing JAM permanent staff and contractors and is apportioned to UED and JEN respectively.

JAM submits that there is a clear necessity for an HR function to support the SNACs business unit and the AER should accept the submission for HR resources as adjusted in this submission.

22 Service Delivery and Contract Management

22.1 UED and JEN original budget application

In the substantiation of base costs to provide regulated services,[89] JAM outlined the requirements for service delivery and contract management resources for the purposes of:

- ensure compliance
- contract management and procurement activities
- performance and reporting.

The budgets relating to these services are outlined in the table below.

Table 22-1 Service Delivery and Contract Management

2011 Real ,000	2012	2013	2014	2015
UED	1023	1045	921	938
JEN	659	672	690	702

22.2 Impaq review

In the Impaq review[90], Impaq estimated that the budget provided by UED and JEN corresponds to 2.5 FTEs for JEN to 2.5 FTEs for UED (total of 5 FTEs).

Further, Impaq determined that the likely resource requirements for these functions are as follows:

- Ensure Compliance: 0.25 FTE for JEN, 0.25 FTE for UED (total 0.5 FTE) as the majority of the functions would be incorporated into the businesses' existing compliance and regulatory processes, with only a requirement for a more detailed analysis of systems, process and performance to ensure regulatory and market compliance.
- Contract Management and Procurement: 2 FTE for JEN and 2 FTE for UED (total 4 FTE) as the AMI program is being delivered by external providers. Impaq also accepts that there would be approximately

[89] AMI Budget Application 2012-2015, Substantiation of Base Cost to Provide Regulated Services, JAM (6) Pty Ltd, 25 February 2011, p. 108.

[90] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, JEN Section 5.6.11 and UED Section 8.18)

$100,000 per year for external legal support (or 0.5 FTE for JEN and UED)

- Performance and Reporting: no additional FTEs as the development of a business intelligence dashboard that proactively manages KPIs to ensure compliance is an IT capital expense. Further, the analysis of this dashboard is already covered under 'Ensure Compliance'.

As a result, Impaq has determined that the budget is as outlined in the table below.

Table 22-2 Impaq Service Delivery and Contract Management

$,000	2012	2013	2014	2015
Service Delivery & Contract Management – UED	500	500	500	600
Service Delivery & Contract Management - JEN	517	526	541	550

22.3 AER draft decision

Based on the Impaq review, the AER upheld Impaq's proposed budget for both JEN and UED. The AER considers that "while this resourcing requirement may be justifiable at the start of the AMI roll-out, UED [JEN] has not indicated why the same level of expenditure should be maintained at this excessively high level."[91]

The AER has also indicated that the submitted costs are excessive given that *"efficiencies could be gained by merging other areas into this category. Furthermore, it should be noted that the tasks to be performed by these FTE's appear to be similar to the functions outlined for asset strategy and management and IT Opex."*[92]

The AER then cites the example of the engineer compliance specialist at the same time as requesting numerous FTE's in strategic asset management to conduct similar tasks.

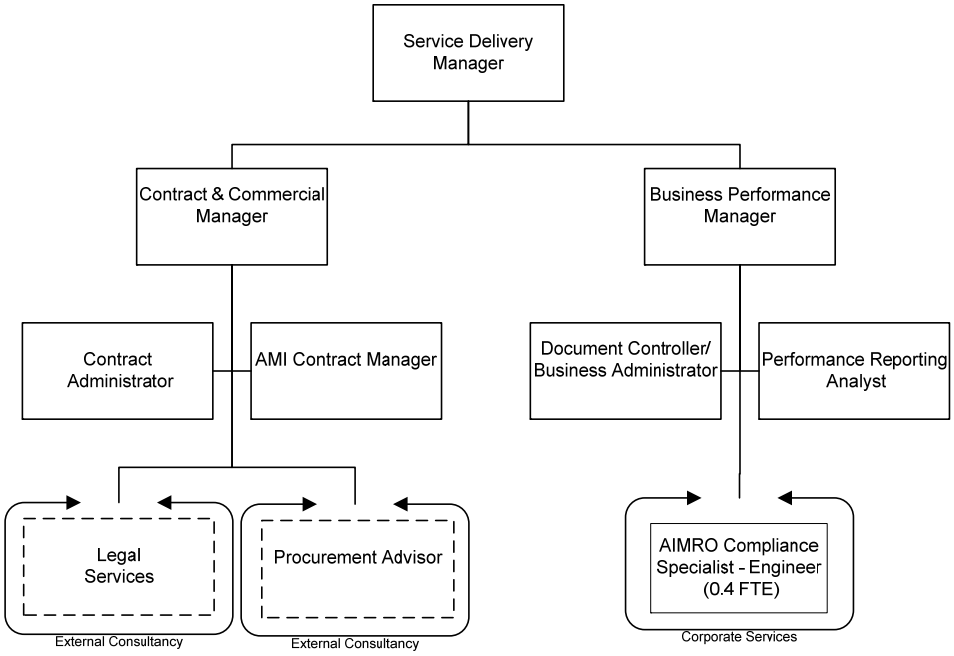
[91] AER Draft Determination, Victorian Advanced Metering Infrastructure Review, 2012 2015 budget and charges applications, 28 July 2011, p. 135 (UED), pp. 158 (JEN).

[92] AER Draft Determination, Victorian Advanced Metering Infrastructure Review, 2012 2015 budget and charges applications, 28 July 2011, p. 136 (UED), pp. 159 (JEN).

22.4 JAM response

Below is the organisational structure for the service delivery and contract management team within JAM, which services both the UED and JEN businesses.

Figure 22-1 Service Delivery Organisation Structure



Based on this structure, JAM has proposed 7.4 FTE's in total for both UED and JEN.

The following roles are split 68:32 between UED and JEN (based on network size):

- Contract & Commercial Manager
- Contract Administrator
- AMI Contract Manager
- Performance Reporting Analyst

The remaining roles are split 50:50 (based on performance of equal amount of work for each network).

The purpose of each role is provided below:

Table 22-3 Service Delivery and Contract Management Roles

Role	Purpose
Service Delivery Manager	Management of the Service Delivery team through the provision of strategic planning and managerial direction. Also responsible for the provision of a single point of contact for the Asset Owner enquiries and requests.
Contract & Commercial Manager	Oversees performance of the AMI & Business as Usual materials and services contracts and maintains vendor relations
Contract Administrator	Oversees performance of the mass rollout materials and services contracts, as well as maintaining vendor relations for all supplier contracts.
AMI Contract Manager	Manages the contracts that transfer across from the AMI program, including the meter providers and meter installers.
Document Controller/Business Administrator	Manages the document management portal and responsible for providing general office and administration support for the department
Business Performance Manager	Supports the Service Delivery Manager through the provision of expertise in business performance management, including management of risk, compliance & business continuity and ongoing performance & KPI reporting back to Asset Owners
Business Performance Analyst (Issues Change & Reporting Analyst)	Manages issues risk and change management processes for SNACS. Assists with the collation of information required for monthly reports
AIMRO Compliance Specialist – Engineer (0.4 FTE)	Facilitates the validation of the Electricity Safety Management Scheme AMI variation, the management of technical obligations in the Risk Management system, and to perform safety audits and provide assurances to management and to Energy Safe, Victoria

It should be noted that this team manages both AMI and BAU activities for the entire SNACs team and manages the following contracts:

- Silver Springs Networks – AMI Communications supplier
- Secure – AMI meter supplier
- Select Solutions – BAU meter provider, back office (meter data management, service order management, service desk, network billing)

- Formway – Specialist Metering services

In relation to the contract management tasks, other than the contracts relating to the AMI mass rollout project which are predominately managed by the AMI Contract Manager, the other two roles are responsible for ongoing contract maintenance and management activities. This includes review of monthly operational reports from suppliers, placement of logistics orders with suppliers, dealing with supplier contract variations, management of supplier issues, preparation of papers, agendas and minutes for monthly operations and contract governance meetings with suppliers.

Additionally, the Service Delivery Manager and Business Performance team are responsible for dealing with any enquiries and issues from the Asset Owners relating to the delivery of services by the SNACS team, development of monthly performance (**KPI**) reports for Asset Owners, preparing papers, agendas and minutes for Asset Owner monthly governance meetings, management of risks, compliance and business continuity activities for the SNACS team and feeding into the wider JEN risk management and compliance processes, providing support to the SNACS team for all regulatory compliance obligations (such as co-ordinating accreditation and auditing activities for Meter Data Provider (**MDP**), Meter Provider B (**MPB**) for AEMO and ISO9001 certification) and general document management and office administration tasks for the wider SNACS team.

In particular, the AIMRO Compliance Specialist role is part of the Risk and Technical Compliance team, and only 0.4 FTEs are apportioned to these metering services. This role is specifically required to manage the additional regulatory requirements resulting from AMI including meter exchanges and safety of remote disconnections and re-connections under the JEN and UED Electricity Safety Management System which is approved by Energy Safe Victoria.

This AIMRO Compliance Specialist is a 0.4 FTE incremental impact to an adjacent JAM asset management organisational unit and therefore not depicted in the Metering Asset Strategy and Technology organisation structure

Based on the above, JAM considers that its original proposed budget for Service Delivery is justified and prudent. JAM has however identified some Financial Operational audit costs mis-allocated into Asset Operations and has correctly reallocated those costs into Service Delivery and Contract Management reflected in the tables below.

JAM concludes that the Impaq review and the subsequent AER draft determination has not taken into consideration the extensive work required for both AMI and business as usual contract management and service delivery

tasks and the AER should approve costs as per the JAM's amended base costs for Service Delivery and Contract Management.

Table 22-4 Service Delivery and Contract Management Original (May) Proposal

2011 Real $,000	2012	2013	2014	2015
UED	1,023	1,045	921	938
JEN	659	672	690	702

Table 22-5 Service Delivery and Contract Management Revised Proposal

2011 Real $,000	2012	2013	2014	2015
UED	1,213	1,218	921	938
JEN	740	753	690	702

23 IT infrastructure – Infrastructure Support and Data centre costs

23.1 UED/JEN original budget application

UED and JEN submitted cost in the subsequent budget period related to the operation and support of IT infrastructure housed within two data centres.

23.2 Impaq review

In respect of JEN's budget submission, Impaq make the following findings:

"One of the larger costs ([C-I-C] *million over the period) is for Data Centre services which are contracted with Logica. In the Logica contract there is the detailed breakdown of the costs and there is detail of the applications and the operating system images to be run as a managed service. For JEN there are 11 racks for the production site and 12 racks for the Disaster Recovery (DR) site (which is also used for development). This is a very large amount of rack space. There are 42 rack units (RUs) per rack. Hence this translates to 966 rack units.*

Considering that:

- *servers can be as small as 1RU;*
- *with blade servers there can be even more than one server per effective RU; and*
- *many applications now run on virtual servers, this is a lot of rack units.*

Impaq has met with JEN to discuss this and other matters. JEN has provided data centre layouts of racking for both the production site and the DR site. The layouts show that there is about 30 per cent to 50 per cent free space.

It is understood that the other JEN and UED systems are not hosted in this data centre and are hosted in data centres that will be closing in the near future. Hence it may be prudent, from a business perspective, for both JEN and UED to move their other systems to run from the data centres used for AMI. There is perhaps a case for having the additional rack space now so that when other systems are shifted in they are in contiguous racks rather than in other areas of the data centre. However it is noted that the AMI project is paying for this when it is the rest of the business which will be the beneficiary.

In the Logica contract information reference is made to the list of 131 operating system images for JEN. It is noted that for JEN there is a total of 12 images for Gateway (B2B) and 9 for OMS. These are out of scope as they are required for

DUOS services. JEN maintained at the meeting with Impaq that the OMS is within scope. However in the CROIC136 it is only an OMS for AMI outages that is in scope, which would be a relatively simple OMS. It is understood that the JEN OMS is used also for electrical network outages. Hence it is Impaq's view that the infrastructure support cost be reduced by 16 per cent for these out of scope items and the managed. Services and data centre facilities fees be reduced by 30 per cent due to the unused space in the racks."[93]

Impaq makes the same findings in respect of UED infrastructure support and data centre services.[94]

23.3 AER draft decision

23.3.1 Infrastructure Support and Data centre costs - JEN

"Based on Impaq's advice, the AER considers JEN's overbuild of its data centre of 30- 50 per cent to be a substantial departure from the commercial standard that a reasonable business would exercise in the circumstances. However, in light of new information from JEN the AER did not establish that JEN's outage management services costs is a substantial departure from a commercial standard.275. Accordingly, the AER has approved the costs set out in Table D.44.276. These costs are based on Impaq's recommended revision to expenditure and its recommended adjustment to JEN's forecasts of IT infrastructure support costs for 2012-2015 which the AER considers reflect the commercial standard."[95]

23.3.2 Infrastructure Support and Data centre costs - UED

"On UED's infrastructure support forecast, the AER notes Impaq's advice that UED's plans for its new data centre is excessive as around 30-50 per cent of the data centre's capacity has not been used. While the AER considers this spare capacity to be excessive, it was not able to substantiate that this expenditure was a substantial departure from a commercial standard as the difference in UED's forecasts compared to Impaq's bottom build was below the 20 per cent threshold allowed by the revised Order."[96]

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[93] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, JEN Section 5.7.2

[94] Impaq Consulting AER Review of DNSPs AMI Budget Submissions for 2012 to 2015 Version 2.2 20 July 2011, UED Section 8.21.1

[95] AER Draft Determination, Victorian Advanced Metering Infrastructure Review, 2012 2015 budget and charges applications, 28 July 2011, Section D.5.14

[96] AER Draft Determination, Victorian Advanced Metering Infrastructure Review, 2012 2015 budget and charges applications, 28 July 2011, Section D.4.16

23.4 JAM response

JAM has reviewed Impaq's analysis of JEN and UED's data centre rack utilisation which concludes that there is under utilisation and inefficient use of the data centre rack enclosures. On Impaq's advice the AER has reduced the JEN and UED managed services and data centre cost by 30 per cent over the subsequent budget period.

While visual inspections of data centre racks may create the perception of under utilisation to the uninitiated, in reality the density or lack of equipment within the data centre racks does not necessarily relate to available capacity. This is the case with the UED and JEN equipment in the EDC and Primus data centres.

While physically being able to put equipment into a rack enclosure is obviously one consideration when determining rack density, there are a number of other factors that are of equal if not higher importance. These factors combine to determine the amount and density of equipment that can be placed into a data centre and in rack enclosures.

The key factors are:

- Power requirements: The capability of the data centre to provide the required amount of power to the rack enclosure as well as the internal power distribution design within the rack enclosure will constrain the amount of equipment that can be deployed. Typically more modern IT equipment has a higher power requirement.

- Cooling: The data centres cooling design will determine the ability to cool the equipment within the rack enclosure and consequently the amount of equipment that can be deployed. Advanced cooling techniques such as water cooling may allow a higher density of equipment over traditional air cooled data centres.

- Equipment Weight: Data centres generally have constraints on the amount of weight that can be placed on the floor.

For the EDC data centre, which is the production data centre for the UED and JEN metering services infrastructure, the primary constraint that is driving the density of equipment in the rack enclosures is power consumption. EDC have a maximum limit of a 3kW load on each rack. For UED and JEN the current point-in-time total power requirement for the infrastructure in EDC is approximately 30kW. This means that considering power consumption alone this equipment is required to be spread across a minimum of ten rack enclosures.

When other factors are considered such as optimal cooling arrangements, potentially higher power requirements during periods of higher load (as more AMI data needs to be processed in the latter parts of the roll out), and access requirements to allow maintenance UED and JEN require a lay out that spreads the equipment across eleven racks.

It should also be noted that the theoretical power requirements of the infrastructure deployed for AMI is 58kW (as can be determined from the Logica Managed Services Contract[97] already provided to AER and Impaq). This is over 25kW higher than the capacity for the racks that UED and JEN have procured. This demonstrates the prudent approach that has been taken in designing and establishing the data centre.

In the Primus data centre the situation is similar. Primus has a maximum power consumption of 4kW per rack enclosure. While this gives slightly more capacity, this data centre is used as the disaster recovery data centre and mirrors all activity of the production data centre. Primus also houses the non-production environments that are required to support production (i.e. development, testing, training and quality assurance). These non-production environments add additional requirements on top of those required for the DR environments. The DR environments for production and additional non-production environments are spread across 12 racks.

Impaq has stated that UED and JEN have procured redundant space in the data centre racks to migrate applications that are not related to regulated services. As described above the provisioning of rack space and data centre services is required and appropriate and that the Impaq assessment is superficial and inappropriate. As stated the data centre racks provisioned are full with systems and applications required for the regulated services that are within scope under the CROIC. Accordingly, the costs submitted by JEN and UED in the budget applications should be maintained and not reduced as recommended by Impaq.

[97] Logica Managed Services Agreement, Schedule 2.2 Data Centre Facilities and Services, Appendix C – Data Centre Racks

24 Metering IT

24.1 UED/JEN original budget application

In the substantiation of base costs to provide regulated services,[98] JAM outlined the requirements for metering IT opex in the following categories:

- IT governance;
- IT Service Provider Management; and
- IT Application Support.

JAM has presented costs in the budget application that relate to operation of the IT Support Department. This Department is made up of 33 FTE's that provide support services to both UED and JEN.

The budgets relating to these services are outlined in the table below.

Table 24-1 Metering IT Opex Original Submission

Nominal $,000	2012	2013	2014	2015	Total
UED	2,985	3,053	3,152	3,219	12,409
JEN	2,179	2,229	2,301	2,350	9,058

24.2 Impaq review

In the Impaq Consulting review, Impaq has reviewed the budgets provided by both UE and JEN and have made the following observations.

"In reviewing this list it is Impaq's view that this number of resources is excessive and can be reduced to 14 based on the following:

a) *The IT systems for AMI have now been operating on a BAU basis since mid-2010. The requirements for AMI have not changed and hence the systems should be reasonably stable by now; and*

b) *The application support can be shared with United Energy as they are using the same applications.*

The following are Impaq's comments in relation to each of the resource categories.

[98] AMI Budget Application 2012-2015, Substantiation of Base Cost to Provide Regulated Services, JAM (6) Pty Ltd, 25 February 2011, p. 114.

Two resources in IT Governance appears excessive. To have an IT delivery manager and an IT delivery co-ordinator is sufficient.

Two resources for workflow seems excessive. Workflow should be well bedded down by now. One full time resource is sufficient

It is understood that the Itron Enterprise Edition MDMS may require some attention for some time. It would appear that utilities in other countries are also experiencing this. However 4 full time resources for just JEN, seems excessive. Impaq's view is that 2 resources are sufficient." [99]

Impaq goes on to review each functional area and effectively reducing the FTE head count by 50 per cent.

For the SAP group Impaq states:

"It is Impaq's view that this group of 8 should be reduced to 4."[100]

For the Webmethod integration layer Impaq states:

"Hence 3 resources are excessive. Changes to BAU operations and business processes, together with new software releases should be able to be easily managed by 1 resource."[101]

As a result, Impaq has determined that the budget is as outlined in the table below.

Table 24-2 Metering IT Opex Impaq View

Nominal $,000	2012	2013	2014	2015
UED	1,548	1,583	1,634	1,669
JEN	1,130	1,156	1,193	1,218

24.3 AER Draft Decision

The AER states:

"The metering IT opex category relates to expenditure forecast for resourcing requirements to comply with regulatory obligations particularly by monitoring, managing and maintaining the production systems and responding to issues as

[99] Impaq Consulting, Australian Energy Regulator, Review of DNSPs AMI Budget Submissions for 2012 to 2015, Version 2.2, 20 July 2011, JEN 5.7.3 and UED 8.21.2

[100] Impaq Consulting, Australian Energy Regulator, Review of DNSPs AMI Budget Submissions for 2012 to 2015, Version 2.2, 20 July 2011, JEN 5.7.3

[101] Impaq Consulting, Australian Energy Regulator, Review of DNSPs AMI Budget Submissions for 2012 to 2015, Version 2.2, 20 July 2011, JEN 5.7.3

they arise. UED has forecast $13.5 million for the provision metering IT opex. The AER considers that:

- *while this resourcing requirement may be justifiable at the start of the AMI rollout, UED has not indicated why the same level of expenditure in terms of staffing (see Figure 6.1) should be maintained at this level. Furthermore, while it is reasonable that systems development, testing and deployments requirements were required at the beginning of the AMI roll-out (where no such systems existed), after the third year of the roll-out UED's IT systems should already have been bedded down and such tasks would occur less frequently*

- *as there is no indication to suggest that UED is not compliant with the revised Order's roll-out and service performance obligations, UED's justification of systems compliance does not appear to be reasonable.*

- *the revised Order only provides expenditure for initial systems integration and not ongoing systems upgrades and does not recognise expenditure to maintain the level of staffing to keep the expertise within a business."*[102]

The AER then go on to accept the Impaq bottom up build of costs. In performing the build-up of costs the Impaq report challenges the staffing number of 27 stating that 14 is more reasonable.

Table 24-3 Metering IT Opex AER Draft Decision Costs

2011 real $,000	2012	2013	2014	2015
UED	1,700	1,700	1,800	1,800
JEN	1,231	1,259	1,300	1,328

24.4 JAM response

In the Impaq review, Impaq determined that only 14 resources were required for JEN, and a further 14 resources were required for UED, a total of 28 resources across both JEN and UE.[103] However, Impaq does not appear to have understood that the organisational structure and role descriptions provided by UED and JEN refer to one combined team providing IT services to both businesses. This in effect delivers the same number of staff across both businesses as recommended by Impaq in their review.

Even though the IT support function is conducted by a combined team for both UED and JEN, it is important to recognise that JAM operates completely

[102] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, Section D 4.17

[103] Impaq Consulting, Australian Energy Regulator, Review of DNSPs AMI Budget Submissions for 2012 to 2015, Version 2.2, 20 July 2011, p. 76 (JEN) & pp. 173 (UED)

separate IT systems for each business, all of which require monitoring, maintenance and support.

The costs for these resources are split between UED and JEN depending on the actual work performed. The average split for each role is 57 per cent for UED and 43 per cent for JEN, which in broad terms equates to approximately 18 FTE for UED and 14 FTE JEN.

JAM does not agree with the costs that Impaq have determined in their bottom up build for these resources. It appears that Impaq have simply reduced the number of FTEs from 28 to 14 and therefore have halved the budget for each business. This approach fails to recognise that the apportionment of costs between UED and JEN had already been applied in the original Budget Applications.

Costs for each of these FTE's can be found in the model submitted to the AER in May. Refer to tab "15. Internal FTE's" and filter results by function. Include 'IT Governance, IT Application Support – AMI and IT Service Provider Management – AMI" categories. Refer to columns "L" through "Q" for Annual Salary and cost allocation between UED and JEN.

Service levels

The AER states:

- *"as there is no indication to suggest that UED is not compliant with the revised Order's roll-out and service performance obligations, UED's justification of systems compliance does not appear to be reasonable."*[104]

AMI specific services level requirements do not come into effect until 1 January 2012. The ability to meet obligations from that date will be an ongoing challenge as the number of remotely read interval meters (**AMI meters**) increases as the rollout progresses.

The AER further asserts that after the third year of rollout, IT systems should already be bedded down. However, by January 2012 UED and JEN will only have approximately 46 per cent of the meters exchanged. From that date until the end of the rollout, approximately 15 months later, the remaining 53 per cent of the meters will come online. While UED and JEN have designed and implemented a solution that will scale to handle the expected data volumes, these systems will require constant monitoring and maintenance to ensure delivery of data to the market by 6am, as mandated by the Victorian AMI service level specifications.

[104] AER Draft Determination Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications 28 July 2011, Section D 4.17

The AER also asserts that the *"revised order only provides expenditure for initial systems integration and not ongoing systems upgrades and does not recognise expenditure to maintain the level of staff to keep the expertise within the business."*[105]

However, the budget requested relates to maintenance and operation of IT systems that are required to comply with metering regulatory obligations, which JAM assets is within scope of the CROIC. In addition, these costs relate to vendor releases required to ensure that all IT systems remain supported by vendors under commercial arrangements. This is particularly important given that the technology is leading-edge, and vendors issue releases to fix bugs or changes required at an industry level to ensure ongoing compliance.

For example, the AMI systems have only been live for both UED and JEN since June 2010, and defects identified as part of the AMI system roll out are still being rectified. In some instances, defects will only be identified when the transactional volumes reach close to 100 per cent of the design capacity, which will not occur until 2013.

Accordingly, in light of the above it is apparent that Impaq has misunderstood both JEN and UED's budget applications and how they relate to the implementation and ongoing operation of AMI. JAM asserts therefore that the original budgets submitted by JEN and UED for Metering IT opex are justified and prudent.

Table 24-4 Metering IT Opex Original Proposal

Nominal $,000	2012	2013	2014	2015
UED	2,985	3,053	3,152	3,219
JEN	2,179	2,229	2,301	2,350

Table 24-5 Metering IT Opex Revised Proposal

Nominal $,000	2012	2013	2014	2015
UED	2,985	3,053	3,152	3,219
JEN	2,179	2,229	2,301	2,350

[105] AER Draft Determination, Victorian Advanced Metering Infrastructure Review 2012-15 budget and charges applications, 28 July 2011, p138 (UE), p.161 (JEN)

25 MRO Back Office

25.1 UED and JEN original budget application

In JEN and UED's original budget application,[106] MRO Back Office costs were provided as outlined in the table below.

Table 25-1 MRO Back Office Capex Original Submission

Real 2011 $'000	2012	2013	2014	2015	Total
UED	1,650	519	-	-	2,169
JEN	777	244	-	-	1,021

25.2 Impaq review

Impaq Consulting has accepted UED and JEN proposed costs for MRO Back Office Capex.[107]

25.3 AER draft decision

The AER has accepted UED and JEN's proposed costs for MRO Back Office Capex.[108]

25.4 UED and JEN response

While the original budget submissions for both UED and JEN have been accepted by the AER in the Draft Determination, a recent review and subsequent report by Energy Safe Victoria (ESV)[109], and the resulting change in UED's and JEN's regulatory obligations, has resulted in an adjustment to the budgets for MRO Back Office capex.

After an incident in early 2011 where an AMI meter was incorrectly installed, the ESV carried out a review of the rollout of AMI meter programs for all Victorian electricity distribution businesses. As part of this review, the ESV made recommendations for improvements. The ESV's recommendations include:

- Distribution businesses that rely on service provider audits and inspections should either:

106 UED & JEN Financial Models.

107 Impaq Consulting, Australian Energy Regulator, Review of DNSPs AMI Budget Submissions for 2012 to 2015, Version 2.2, 20 July 2011, p. 58 (JEN) & pp. 157-158 (UED)

108 AER Draft Determination, Victorian Advanced Metering Infrastructure Review, 2012 2015 budget and charges applications, 28 July 2011, p. 141 (UED), pp. 164 (JEN).

109 Energy Safe Victoria, Final Report on Safety Aspects of the Victorian Advanced Metering Infrastructure (AMI) Program Meter Deployment Activities, 29 April 2011.

- require service providers to change the supervisory arrangements such that the people conducting audits and post installation inspections are independent of the management and supervision of the people being audited, and increase the relative priority of audits and post installation inspections; or

- implement their own dedicated auditing processes with dedicated auditors.

- Distribution businesses to ensure that the sample sizes for audits and post installation inspections, whether conducted internally or by service providers, as a minimum, satisfy the requirements of AS 1199.1-2003.

As a direct result of this ESV requirement, JAM has renegotiated with its meter installer service provider, Service Stream Installation Services, to increase the number of supervisors. Accordingly, the number of supervisors has been increased from the one supervisor for every 18 installers to one supervisor for every 10 installers.

JAM has also reviewed its audit program, and is in the process of implementing an enhanced audit program which will increase the number of field auditors from three qualified auditors to 12 qualified auditors across both networks. This will take the number of audits performed from approximately 8 per cent of all installations across UED and JEN, to 9 per cent of UE and 11 per cent of JEN.

JAM is currently undertaking a competitive tender process to engage suitably qualified auditors to undertake the enhanced audit program. The total incremental cost for these improvements is [C-I-C]

Table 25-2 MRO Back Office Capex Original Submission

Real 2011 $'000	2012	2013	2014	2015
UED	1,650	519	-	-
JEN	777	244	-	-

Table 25-3 MRO Back Office Capex Revised Proposal

Real 2011 $'000	2012	2013	2014	2015
UED	3,428	2,297	-	-
JEN	1,613	1,081	-	-