AusNet Electricity Services

Advanced Metering Infrastructure

2015 Charges Revision Application

29 August 2014

About AusNet Services

AusNet Services is a major energy network business that owns and operates key regulated electricity transmission and electricity and gas distribution assets located in Victoria, Australia. These assets include:

- A 6,574 kilometre electricity transmission network that services all electricity consumers across Victoria;
- An electricity distribution network delivering electricity to approximately 660,000 customer connection points in an area of more than 80,000 square kilometres of eastern Victoria; and
- A gas distribution network delivering gas to approximately 572,000 customer supply points in an area of more than 60,000 square kilometres in central and western Victoria.

AusNet Services' purpose is 'to provide our customers with superior network and energy solutions.' The AusNet Services company values are:

- Safety: to work together safely. Protect and respect our community and our people.
- Passion: to bring energy and excitement to what we do. Be innovative by continually applying creative solutions to problems.
- Teamwork: to support, respect and trust each other. Continually learn and share ideas and knowledge.
- Integrity: to act with honesty and to practise the highest ethical standards.
- Excellence: to take pride and ownership in what we do. Deliver results and continually strive for the highest quality.

For more information visit: www.ausnetservices.com.au

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Executive Summary

The Cost Recovery Order-in-Council as amended (the **Order**) provides for the setting and recovery of prices, fees and charges in regard to the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems. Under the Order a prudent cost pass through methodology is to be applied.

Clause 5 of the Order sets out the requirements for distributors in making an application to the Commission in respect of budgets, charges and fees. This submission is made under Clause 5G and represents AusNet Services' 'Advanced Metering Infrastructure 2015 Charges Revision Application' (the **Charges Revision Application**).

Under the Order AusNet Services is required to update the 2012 to 2015 building blocks components with a combination of actual costs and current forecasts.

On 2 May 2014 AusNet Services disclosed to the Australian Securities Exchange (ASX) that it is undertaking a Technical Review of its AMI solution to address issues of instability. This review is ongoing. For the avoidance of doubt, any additional remediation expenditure identified as a result of this review is not reflected in the expenditure forecasts provided as part of this submission.

Total Revenue Requirement

AusNet Services' total revenue requirement as determined using the methodology, set out in the Order, is summarised below. In order to smooth the transition in charges, AusNet Services has proposed to under-recover the net present value of total costs to 2012 and 2013, with the under-recovery being carried forward to the 2015 period.

Table E.1: Total Revenue Requirement ($m, nominal)

	2012 Actual	2013 Actual	2014 Forecast	2015 Forecast
Return on Capital	28.2	32.5	30.0	30.4
Return of Capital (Depreciation)	34.4	50.5	46.9	48.7
Operating & Maintenance	40.2	40.5	40.3	40.3
Carry forward from 2009-11	10.6	–	–	–
Building Blocks Revenue Requirement	113.4	123.5	117.1	119.3
Tariff Revenue	83.6	101.3	123.1	162.6

Note: Operating and Maintenance costs in 2014- 2015 include debt raising costs.
The forecast operating and maintenance expenditure above does not reflect any additional costs as a result of the findings of the Technical Review of Ausnet Services' AMI solution.

Regulated Services Charges

AusNet Services considers that the proposed charges for Regulated Services for the period 2014–2015 as set out in Table 6. 4 of this Charges Revision Application are determined in accordance with the methodology required in the Order.

1 Introduction

1.1 Background

The Victorian State Government policy decision in 2006 to mandate the rollout of advanced metering infrastructure (**AMI**) to all Victorian electricity customers required the Regulator (then the Essential Services Commission of Victoria (**ESC**)) to re-determine a distributors' metering services revenue requirement and establish a new price control to take effect from 1 January 2009. The framework for this determination, based on a 'forecasts and incentive regime', was set out in the Order in Council[1] gazetted in August 2007 (the original Order).

An amending Order in Council[2] was published in November 2008, again requiring revision to the approach to setting prices for regulated metering services. A number of amendments have since been made.

In January 2009, the Australian Energy Regulator (**AER**) published its '*Final Decision – Framework and Approach paper – Advanced metering infrastructure review 2009–2011'*, setting out the approach to be followed in making a determination on the prices distributors can charge for the prescribed metering services specified in the Order.

1.2 This application

1.2.1 Purpose

Clause 5G.1 of the Order requires:

> *'A revised charges application **('Charges Revision Application')** must be made to set revised charges in respect of Regulated Services for each of the years commencing 1 January 2012, 2013, 2014 and 2015.'*

Clause 5G.2 requires:

> *'The application shall be made not later than 31 August in the year ('year t') immediately preceding the year that the revised charges are to take effect ('year t+1').'*

For the purposes of this application 'year t' is the calendar year 2014 and 'year t+1' is the calendar year 2015.

1.2.2 Period covered by this application

Clause 5H.1(a) requires that the application state the period to which the application relates. This Charges Revision Application covers the period 1 January 2015 to 31 December 2015 inclusive.

1.2.3 Format

Section 2: sets out the regulatory framework and timetable for the AMI program and identifies the requirements of the Order in respect of this Charges Revision Application.

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1 Victorian Government Gazette, *'Order in Council No S 200'*, 28 August 2007.

2 Victorian Government Gazette, *'Order in Council No S 314'*, 25 November 2008.

Section 3: sets out AusNet Services' recoverable expenditure requirements in terms of operating and maintenance expenditure and capital expenditure requirements.

Section 4: provides an update on AusNet Services' AMI rollout.

Section 5: sets out AusNet Services' forecast revenue requirement.

Section 6: sets out AusNet Services' proposed charges for prescribed metering services.

1.2.4 Other documentation relied upon

The following documents have previously been submitted to the ESC or AER, as provided for under clause 5.3 of the Order and where appropriate they may be relied upon in support of this Charges Application:

- Submission on the 'Rate of Return to Apply to the Charges Revision Applications for Advanced Metering Infrastructure – Prepared jointly by the Victorian Electricity Distribution Businesses, and including all documents listed in Appendix C to that submission.
- Various responses to AER questions in relation to AusNet Services' AMI Subsequent Budget and Charges Applications;
- Various responses to AER questions in relation to AusNet Services' 2009–2011 Revised Budget Application and the AER's Draft and Final Determination thereon;
- Response to the Draft Determination on the 2009–2011 Revised Budget Application – AusNet Services, 18 April 2011;
- AMI Subsequent Budget and Charges Application 2012–2015 – AusNet Services, 28 February 2011;
- 2009–2011 Revised Budget Application – AusNet Services, 28 February 2011;
- 2011 Charges Revision Application – AusNet Services, 31 August 2010;
- EDPR 2011–15, Related Party Arrangements – AusNet Services, November 2009;
- EDPR 2011–15, Revised Related Party Arrangements – AusNet Services, July 2010.
- Various AusNet Services responses to the AER and the ESC questions both pre and post the Draft Determination[3], July 2009;
- AMI Revised Budget Application – AusNet Services, 28 August 2009;
- AMI Initial Budget Application – AusNet Services, 27 February 2009 (initial) and 3 March 2009 (revision);
- AMI Consultation Paper: Revised Framework & Approach (December 2008) Response – AusNet Services, December 2008;
- AMI Revised Pricing Proposal – AusNet Services, September 2008;
- AMI Reference Documentation – AusNet Services, September 2008; and
- AMI Pricing Proposal – AusNet Services, December 2007.

[3] AER, 'Draft Determination Victorian AMI Review 2012-15 budget and charges applications', 28 July 2011.

2 Regulatory requirements and timetable

2.1 Regulatory Framework

Sections 15A and 46D of the Electricity Industry Act 2000 (the **Act**) enable the making of orders for the development and roll out of AMI infrastructure within Victoria. The relevant orders under the Act are the AMI Specifications Order made on 12 November 2007 (as subsequently amended) (**Specification Order**) and the AMI Cost Recovery Order initially made on 28 August 2007 and subsequently amended on 25 November 2008, 31 March 2009, 19 October 2010 and 21 December 2011 (the **Order**).

Under the Specifications Order, two specifications setting out the minimum functionality, performance and service level requirements for AMI infrastructure deployed in Victoria have been developed, namely the:

- Minimum AMI State-wide Functionality Specification (Victoria) Release 1.1; and
- Minimum AMI Service Levels Specification (Victoria) Release 1.1.

The purpose of the Order (as amended) states[4]:

> *'The purpose of this Order is to:*
>
> *(a) provide for the setting and regulation of the prices, fees and charges that a relevant licensee who is a distribution company may charge for or in connection with the costs of, or in relation to, the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems;*
>
> *(b) empower the recovery of those prices, fees and charges from a retailer who is a relevant licensee or a class or classes of retailers who are relevant licensees supplied electricity by the distribution company;*
>
> *(b)(b) provide for side constraints; and*
>
> *(c) confer powers and functions on, and leave matters to be decided by, the Commission.'*

2.2 AER Framework and Approach

The AER published its Final Decision – Framework and Approach paper – Advanced metering infrastructure review 2009–2011 in January 2009. AusNet Services has complied with the requirements of that paper in preparing this Charges Revision Application.

[4] Government Gazette No S314, *'AMI Order in Council, 2008'*, Part A, Clause 1A.

2.3 The Cost Pass Through Approach

The Order provides for the cost pass through of efficient costs. Under this approach budgets are established at the beginning of a period, with annual charges adjusted based on actual expenditure.

The methodology used to determine regulatory charges is based on a building block approach where the building blocks for a year are:

> *'(i) a return on capital;*
>
> *(ii) depreciation;*
>
> *(iii) maintenance and operating expenditure;*
>
> *(iv) a benchmark allowance for corporate income tax; and*
>
> *(v) any other building block required by clauses 5D, 5E and 5I,*
>
> *in each case determined subject to this clause 4 and clauses 5D, 5E and 5I.'* [5]

Building block costs shall be based on actual expenditure, or if actual expenditure is not available, a distributor's most recent forecast expenditure or where there is some actual expenditure available, that actual expenditure and a distributor's forecast expenditure.

There is no scope for the AER to use expenditure forecasts other than those of the distributor. Whilst the Order was amended in December 2011 to allow the AER a discretion in relation to forecast quantities, a similar amendment was not made in relation to forecast costs. This can be understood by the cost recovery nature of the Order – prices are ultimately a function of actual costs, in relation to which the AER has limited discretion, not forecast costs where no discretion is necessary.

2015 charges are set out according to Clause 4.1 Note 5:

> *'5. Then in 2012 the initial charges for 2013 will be revised to take account of actual expenditure and revenues known to 2011 and revised forecasts for the period to 2015. This process of revising charges is then repeated for 2014 and 2015 to take account of actual expenditure and revenues for 2012 and 2013 as they become known. Then a charge is to be applied in the years 2016 and 2017 to take account of actual expenditure and revenues for 2014 and 2015 as they too become known.'*

[5] Government Gazette No S314, *'AMI Order in Council, 2008'*, Part A, Clause 4.1(b).

Clause 4.1(o) requires that:

> *'The charges of a distributor for every year in the period from 1 January 2010 to the End Date, shall be designed so that, for the period from the Start Date up to and including the year for which charges are being determined, the net present value of the total costs incurred by the distributor for Regulated Services is equal to the net present value of the total revenue earned by the distributor from Regulated Services in that same period where:*
>
> *(i) costs in any year are the building block costs determined in accordance with clauses 4.1(b) to (j); and*
>
> *(ii) revenue in any year is determined in accordance with clauses 4.1(k) to (m).'*

while sub-clause (p) provides for a distributor to propose a 'reduced charge' in any year, subject to approval by the Commission.

The AER's Final Determination[6] of October 2009, October 2011 and February 2013 set out AusNet Services' Approved Budget and Charges for the initial and subsequent budget periods.

2.4 Charges Revision Application

Clause 5G.1 of the Order requires that AusNet Services make a Charges Revision Application in respect of the charges that are to apply in the year commencing 1 January 2015. The application is to be submitted by 31 August 2014.

Clause 5H of the Order sets out the information to be included in this application. For the year commencing 1 January 2014, the information includes:

- actual Total Opex and Capex and revenue for the years 2009–2013;
- updated forecasts of Total Opex and Capex and revenue for the years 2014 (year t) and 2015 – the remaining years of the subsequent budget period; and
- an audit report on actual expenditure for the year 2013 which complies with the requirements of clause 5H.2.

In making a determination on the revised charges to apply in 2015, the AER must determine charges in accordance with clause 4 and clause 5I.

Clause 5H.2 sets out specific requirements in relation to the audit report in regard to actual expenditure for the year 2013.

Clause 5.5(b) of the Order requires AusNet Services to provide a forecast of the number of metering installations that AusNet Services propose to install for each year of the period.

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6 AER, 'Final Determination Victorian AMI Review 2009-11 AMI budget and charges application', October 2009.

AER, 'Final Determination Victorian AMI Review 2012-15 budget and charges application', October 2011, Table 2.23, p. 119.

AER, 'Final Decision, AMI Review 2012-15 budget and charges application – Amendments pursuant to the Australian Competition Tribunal's Orders', 4 February 2013, p. 108.

3 Recoverable expenditure

3.1 Introduction

Clause 5I.1 of the Order requires that the AER make a 'Revised Charges Determination' for the year 2015 in accordance with clause 4 and clause 5I. Clause 4 is the building block methodology used for both AusNet Services' Budget Application and the Charges Application Determinations, where the building blocks comprise:

- a return on capital;
- depreciation;
- maintenance and operating expenditure;
- a benchmark allowance for corporate income tax; and
- any other building block required by clauses 5D, 5E and 5I.

Clause 5I.2 of the Order requires:

> *'In determining the building blocks the Commission must:*
>
> *(a) include actual capital expenditure and actual maintenance and operating expenditure for year t-1 where actual Total Opex and Capex for that year:*
>
> *(i) is certified in an audit report under clause 5H.2;*
>
> *Note: An audit report provided for the purposes of this clause is not conclusive as to whether expenditure is for activities that are within scope.*
>
> *(ii) is for activities within scope at the time of commitment to or incurring of that expenditure; and*

For the purposes of this Charges Revision Application:

Period	Year
Year 't-1'	2013
Year 't'	2014
Year 't+1'	2015

3.2 Audit report for 2013 actual expenditure

In accordance with clauses 5I.2 and 5H.2, AusNet Services engaged KPMG to undertake the audit of the 2013 expenditure. KPMG are members of the Institute of Chartered Accountants in Australia and hold a current Public Practice Certificate.

KPMG's audit report in Attachment 1 certifies that the expenditure incurred is for activities within scope and the expenditure incurred has been incurred in the amount claimed.

3.3 Metering installation forecast

In accordance with Clause 5.5(b), Table 3.1 below provides the actual meter rollout for 2013 and forecast meter rollout for 2014–2015.

Table 3.1: Meter Rollout (2013–2015)

Meter Configuration	2013	2014	2015
Single phase single element	76,271	24,713	7,563
Single phase two element with contactor	40,050	12,937	1,155
Multiphase	53,921	4,067	1,073
Multiphase with contactor	72,290	18,895	23
Multiphase CT connected	552	1,445	38
Total	**243,084**	**63,333**	**9,852**

3.4 Operating and maintenance expenditure

3.4.1 Introduction

Operating and maintenance expenditure is considered to comprise the costs of activities reasonably required for the provision of regulated metering services under the Order and to comply with a metering regulatory obligation or requirement. Schedule S2.6 of the Order sets out the activities considered within scope for AusNet Services.

3.4.2 2012–2015 operating and maintenance expenditure

Clause 5H.1 of the Order requires that an application:

'(b) set out the actual:

(i) Total Opex and Capex (broken down into actual capital expenditure and actual maintenance and operating expenditure); and

(ii) revenue (calculated in accordance with clause 4.1(k)) of the distributor from the provision of Regulated Services

*in the year ('**year t-1**')**[2013]** immediately preceding year t **[2014]**; and*

(c) contain an updated forecast of the:

(i) Total Opex and Capex (broken down into forecast capital expenditure and forecast maintenance and operating expenditure); and

(ii) revenue (calculated in accordance with clause 4.1(k)) of the distributor from the provision of Regulated Services

for:

*(iii) year t **[2014]**; and*

*(iv) the remaining year or years of the initial AMI budget period or the subsequent AMI budget period (as the case may be) **[2015 in this instance]**.'*

Table 3.2 sets out AusNet Services' total actual and forecast operating and maintenance expenditure for Regulated Services for the period 2012–2015 against the Approved Budget set out in the AMI Budget Final Determinations.[7]

Table 3.2: Total Operating and Maintenance Expenditure (2012–2015) ($m, nominal)[8]

Operating and Maintenance Expenditure	2012	2013	2014	2015
Approved Budget)	37.5	31.5	19.2	18.1
Actual / Forecast	40.2	40.5	40.3	40.3

Note: The forecast expenditure above does not reflect any additional costs as a result of the findings of the Technical Review of Ausnet Services' AMI solution.

3.4.3 2013 actual operating and maintenance expenditure

AusNet Services' 2013 operating and maintenance expenditure was $9.0 million (nominal dollars) more than the approved budget. This outcome was largely due to expenditure excesses in relation to:

- meter reading;
- AusNet Services' Project Management Office; and
- corporate overheads and indirect costs.

The drivers of these expenditure excesses are discussed in AusNet Services' Expenditure Excess Application (Attachment 2).

3.4.4 2014 forecast operating and maintenance expenditure

The 2014 forecasts are based on actual costs incurred for seven months of the year and the forecast for the remaining five months has been informed by contracts, timing differentials, regulatory requirements and 2013 actual costs. For the avoidance of doubt, the forecast operating and maintenance expenditure for 2014 does not reflect any additional costs as a result of the findings of the Technical Review of Ausnet Services' AMI solution.

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7 AER, 'Final Determination Victorian AMI Review 2012-15 budget and charges application', October 2011, Table 2.23, p. 119.

AER, 'Final Decision, AMI Review 2012-15 budget and charges application – Amendments pursuant to the Australian Competition Tribunal's Orders', 4 February 2013, p. 108.

8 The 'approved budget' figures in this table are obtained from the AER's AMI 2012-15 Charges Application Remittal Decision model, February 2013. The 'approved budget' figures include inflation and WACC parameters as per the AER's model. The 'actual/forecast' figures include inflation and WACC parameters as per the Victorian Electricity Distribution Businesses' AMI WACC submission, August 2013.

3.4.5 2015 forecast operating and maintenance expenditure

The 2015 forecasts are informed by contracts, timing differentials and regulatory requirement costs which are forecast to be incurred. For the avoidance of doubt, the forecast operating and maintenance expenditure for 2015 does not reflect any additional costs as a result of the findings of the Technical Review of Ausnet Services' AMI solution.

3.5 Capital expenditure

3.5.1 Introduction

Capital expenditure is considered to comprise the costs of activities reasonably required for the provision of regulated metering services under the Order and to comply with a metering regulatory obligation or requirement. Schedule S2.6 of the Order sets out the activities considered in scope.

3.5.2 2012–2015 capital expenditure

Clause 5H.1 of the Order requires actual and forecast capital expenditure for the period 2012–2015. Table 3.3 sets out AusNet Services' total capital expenditure for Regulated Services for the period 2012–2015 against the Approved Budget set out in the AMI Budget Final Determination.[9]

Table 3.3: Total Capital Expenditure (2012–2015) ($m, nominal) [10]

AMI Capital Expenditure	2012	2013	2014	2015
Approved Budget	145.6	75.8	5.6	2.1
Actual / Forecast	140.8	137.1	60.0	10.0

Note: The forecast expenditure above does not reflect any additional costs as a result of the findings of the Technical Review of Ausnet Services' AMI solution.

9 AER, 'Final Determination Victorian AMI Review 2012-15 budget and charges application', October 2011, Table 2.23, p. 119.

AER, 'Final Decision, AMI Review 2012-15 budget and charges application – Amendments pursuant to the Australian Competition Tribunal's Orders', 4 February 2013, p. 108.

10 The 'approved budget' figures in this table are obtained from the AER's AMI 2012-15 Charges Application Remittal Decision model, February 2013. The 'approved budget' figures include inflation and WACC parameters as per the AER's model. The 'actual/forecast' figures include inflation and WACC parameters as per the Victorian Electricity Distribution Businesses' AMI WACC submission, August 2013.

3.5.3 2013 actual capital expenditure

AusNet Services' 2013 capital expenditure was $61.3 million (nominal dollars) more than the approved budget.

This outcome was largely due to expenditure excesses in relation to:

- meter supply;
- meter installation; and
- communication infrastructure and installation.

The drivers of these expenditure excesses are discussed in AusNet Services' Expenditure Excess Application (Attachment 2).

3.5.4 2014 forecast capital expenditure

The 2014 forecasts are based on actual costs incurred for seven months of the year and the forecast for the remaining five months has been informed by contracts, timing differentials, regulatory requirements and 2013 actual costs. For the avoidance of doubt, the forecast capital expenditure for 2014 does not reflect any additional costs as a result of the findings of the Technical Review of Ausnet Services' AMI solution.

3.5.5 2015 forecast capital expenditure

The 2015 forecasts are informed by contracts, timing differentials and regulatory requirement costs which are forecast to be incurred. For the avoidance of doubt, the forecast capital expenditure for 2015 does not reflect any additional costs as a result of the findings of the Technical Review of Ausnet Services' AMI solution.

3.6 Cost of capital parameters

The cost of capital represents the financial return that an investor seeks when making an investment decision and is determined by the market based on the availability of finance and the risk of the investment proposed.

Clause 4.1(d) of the Order requires that the return on capital is to be calculated using the Weighted Average Cost of Capital (**WACC**) as defined by clause 6.5.2 (b) of the NER.

Clause 5E.3 requires that the AER in determining its building block costs:

> *(c) provide a return on capital for 2014 and 2015 using a WACC calculated in accordance with clause 4.1(j);*

The WACC for the period 2014-15 was determined as part of the AER's October 2013 AMI Revised Charges Determination. These parameters are shown in the table below.

Table 3.4: WACC – Capital Asset Pricing Model Parameters (2014–15)

Parameter	2014-15
Nominal risk free rate	4.02%
Inflation	2.47%
Debt margin	2.45%
Gearing	60%
Equity beta	0.8
Market risk premium	6.5%
Nominal cost of debt	6.47%
After tax nominal cost of equity	9.22%
Real post-tax WACC	**4.98%**
Nominal post-tax WACC	**7.57%**

Note: *Debt margin includes debt raising costs of 12.5 basis points.*

3.7 Cost of capital financing

The cost of capital financing comprises a return on capital (WACC) to be applied to the Regulatory Asset Base and a return of capital allowance (depreciation). Depreciation for 2013 is required to be recalculated in line with actual capital expenditure and both these categories affect the metering asset base which in turn will affect the actual calculation of return on capital.

3.7.1 Regulatory depreciation (Return of capital)

Regulatory depreciation enables the recovery of the capital invested and is a function of the assets forming the asset base and the period over which the investment in those assets is to be recovered.

For the period 1 January 2006 to the Start Date actual depreciation costs have been used as required by clause 5D.2 of the Order.

Post the Start Date, Clause 4.1(g) stipulates that asset lives of 15 years for metering assets and 7 years for telecommunications and IT systems are to be used in the calculation of regulatory depreciation, while Clause 4.1(g)(v) requires that in respect of accumulation meters and manually read interval meters, the asset lives must end no later than 31 December 2013.

3.7.2 2013 Actual depreciation

Changes to the type and the timing of capital expenditure incurred affect the depreciation calculation. The 2013 actual depreciation of $51.6 million (real 2014) was $15.6 million higher than the 2013 Approved Budget.

Table 3.5 sets out AusNet Services' total depreciation attributable to Regulated Services for the period 2012–2015 against the Approved Budget.[11]

Table 3.5: Depreciation (2012–2015) ($m, real 2014) [12]

Depreciation	2012	2013	2014	2015
Approved Budget	36.7	36	35.1	34.3
Actual / Forecast	35.9	51.6	46.9	47.5

[11] AER, 'Final Determination Victorian AMI Review 2009-11 AMI budget and charges application', October 2009, Table 3.5, p. 54.

AER, 'Final Determination Victorian AMI Review 2012-15 budget and charges application', October 2011, Table 2.28, p. 126 (real 2008).

AER, 'Final Decision, AMI Review 2012-15 budget and charges application – Amendments pursuant to the Australian Competition Tribunal's Orders', 4 February 2013, p. 108.

[12] The 'approved budget' figures in this table are obtained from the AER's AMI 2012-15 Charges Application Remittal Decision model, February 2013. The 'approved budget' figures include inflation and WACC parameters as per the AER's model.

3.7.3 Metering asset base as per Approved Budget (2009–2015)

AusNet Services' metering asset base for each year of the period 2009–2015 as determined as part of the AER's Approved Budget[13] is set out in Table 3.6 below.

Table 3.6: Metering Asset Base as per Approved Budget ($'000, real 2014)[13]

Metering Asset Base							
Year	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Opening (1 Jan)	41,915	73,701	150,482	238,507	339,550	420,604	424,808
CapEx	43,334	98,518	121,571	146,765	140,077	60,000	9,759
Depreciation	11,547	21,737	33,546	45,723	59,023	55,796	57,201
Disposals	0	0	0	0	0	0	0
Closing (31 Dec)	73,701	150,482	238,507	339,550	420,604	424,808	377,366

Note: Capital expenditure is net of customer contributions. Pre-start AMI capital costs include a WACC adjustment for the time value of money.

3.7.4 Revised Metering Asset Base 2012–2015

AusNet Services' metering asset base adjusted for the differences in capital expenditure and depreciation in 2013 is presented in Table 3.7 below.

Table 3.7: Revised Metering Asset Base ($'000, real 2014)

Metering Asset Base				
Year	**2012**	**2013**	**2014**	**2015**
Opening (1 Jan)	234,771	334,231	414,015	418,154
Capital Expenditure	144,467	137,883	59,060	9,606
Depreciation	45,007	58,098	54,922	56,305
Disposals	–	–	–	–
Closing (31 Dec)	334,231	414,015	418,154	371,455

[13] AER, 'Final Determination Victorian AMI Review 2009-11 AMI budget and charges application', October 2009, Table 3.5, p. 54.

AER, 'Final Determination Victorian AMI Review 2012-15 budget and charges application', October 2011, Table 2.28, p. 126 (real 2008).

AER, 'Final Decision, AMI Review 2012-15 budget and charges application – Amendments pursuant to the Australian Competition Tribunal's Orders', 4 February 2013, p. 108.

3.7.5 Return on Capital 2012–2015

As described in section 3.5 the building block calculation for the return on capital will be affected by the changes to capital expenditure and depreciation.

Table 3.8 sets out AusNet Services' total return on capital attributable to Regulated Services for the period 2012–2015 against the Approved Budget.[14]

Table 3.8: Return on Capital (2012–2015) ($m, real 2014) [15]

AMI Return on Capital	2012	2013	2014	2015
Approved Budget	29.9	33.3	33.2	29.1
Actual / Forecast	29.4	33.2	30	29.6

3.8 Reconciliation to Approved Budget

The following tables summarise AusNet Services' Approved Budget and forecast expenditure for the 2012–2015 period. AusNet Services is proposing to smooth the recovery of this expenditure in this Charges Revision Application (refer to section 6.2).

Table 3.9: Approved Budget (2012–2015) ($m, nominal)

Approved Budget	2012	2013	2014	2015
Approved Operating & Maintenance Expenditure	37.5	31.4	19.2	18.1
Approved Capital Expenditure	145.6	75.7	5.6	2.1
TOTAL Approved Budget[16]	**183.2**	**107.2**	**24.9**	**20.3**

[14] AER, 'Final Determination Victorian AMI Review 2009-11 AMI budget and charges application', October 2009, Table 3.5, p. 54.

AER, 'Final Determination Victorian AMI Review 2012-15 budget and charges application', October 2011, Table 2.23, p. 119.

AER, 'Final Decision, AMI Review 2012-15 budget and charges application – Amendments pursuant to the Australian Competition Tribunal's Orders', 4 February 2013, p. 108.

[15] The 'approved budget' figures in this table are obtained from the AER's AMI 2012-15 Charges Application Remittal Decision model, February 2013. The 'approved budget' figures include inflation and WACC parameters as per the AER's model.

[16] May not sum due to rounding.

Table 3.10: Actual and Forecast Expenditure (2012–2015) ($m, nominal)

	2012 Actual	2013 Actual	2014 Forecast	2015 Forecast
Operating & Maintenance Expenditure	40.2	40.5	40.3	40.3
Capital Expenditure	140.8	137.1	60.0	10.0
TOTAL[17]	**181**	**177.6**	**100.3**	**50.3**

Note: The forecast expenditure above does not reflect any additional costs as a result of the findings of the Technical Review of Ausnet Services' AMI solution.

AusNet Services' actual Total Opex and Capex for 2013 was $177.7 million (nominal dollars) compared to an Approved Budget expenditure of $107.2 million (nominal dollars).

AusNet Services' actual total expenditure exceeded the budget in 2013 by $70.5M. In these circumstances, the Order requires AusNet Services to demonstrate that the additional expenditure (which is referred to in the Order as 'expenditure excess') has been incurred efficiently. The 'expenditure excess' will be incorporated into the building blocks and recovered through AMI charges if the AER determines that the expenditure is efficient.

AusNet Services is seeking to include this expenditure excess as a building block cost to be recovered through AMI charges, and has provided its Expenditure Excess Application as Attachment 2.

[17] May not sum due to rounding.

4 AMI rollout update

4.1 Performance in 2013

As at 31 December 2013, a total of 654,998 meters were installed by AusNet Services, of those meters 385,781 were 'logically converted' and operating as remotely read interval meters.

Table 4.1: Report of Remotely Read Interval Meter Installations for 2013

Meters installed in 2013	Cumulative to 31 December 2013	Meters operating as remotely read
243,084	654,998	385,781

AusNet Services' Expenditure Excess Application (Attachment 2) sets out the drivers of the 2013 outcomes, which include a number of external factors:

- policy and safety reviews undertaken by the Victorian Government and various agencies;
- customer concerns about AMI meters, and issues associated with gaining access to customer sites for the purpose of installing AMI meters; and
- market conditions for meter installers.

4.2 Assessment of 'best endeavours' obligation

Clause 14 of the Order sets out the Victorian distributors' obligations in relation to the rollout program. In particular, clause 14.1(a) imposed an obligation on distributors to use best endeavours, to the extent practicable, to rollout remotely read interval meters by 31 December 2013.

It is noted that verifying compliance with this best endeavours obligation is a matter for the Essential Services Commission (ESC). In March 2014, the ESC, together with each of the Victorian distributors, appointed independent auditors to undertake an audit of each distributor's compliance with this obligation in accordance with *Draft Guideline No. 22 – Regulatory Audits of Energy Businesses*. The audit report for AusNet Services was provided to the ESC in July 2014.

These audit reports for each of the Victorian distributors are then to form the basis for the ESC to make an assessment of compliance against this 'best endeavours' obligation. The ESC is yet to issue its final report on this matter.

4.3 Changes to the Order

On 5 August 2014, the Victorian Government amended the Order to prevent distributors from recovering the manual reading costs associated with accumulation meters from customers with smart meters from 1 April 2015.

Under the amended Order, distributors can make an application annually to the AER for a 'manual meter fee' which recovers the direct costs of manually reading accumulation meters. The first of these charges can be levied on those customers that elect to retain their accumulation meter from 1 April to 31 December 2015.

4.4 Manual reading costs

AusNet Services has excluded the costs of reading accumulation meters from its forecasts to ensure these costs are not recovered from customers with smart meters from 1 April 2015.

It is expected that AusNet will have less than 7,500 customers who have elected to retain their accumulation meter by 1 April 2015. The cost of manually reading 7,500 accumulation meters between 1 April and 31 December 2015 is estimated at approximately $517,000, based on an estimated cost of $23 per accumulation meter read with three reads over the period. This excludes administrative costs associated with directly billing customers.

AusNet Services has elected to **not** recover its manual reading costs from customers with accumulation meters from 1 April 2015. AusNet Services is committed to working with customers to resolve any issues relating to the transition to smart metering technology.

Attachment 4 provides further information on AusNet Services' position with respect to the recovery of manual reading costs.

5 Revenue requirement

5.1 Introduction

In regard to revenue requirement, this Charges Revision Application is required to include:

- for the year 2013, revenue (calculated in accordance with clause 4.1(k)); and
- for the years 2014 to 2015, an updated forecast of revenue (calculated in accordance with clause 4.1(k)).

5.2 2013 actual revenue requirement

Clause 4.1(k) of the Order requires that:

> *"For the purposes of clauses 4.1(o) and 5H.1, revenue must be determined as follows:*
>
> *(i) Where actual revenue is available, by using the revenue figures in the distributor's Regulatory Accounting Statements."*

AusNet Services' actual 2013 revenue as shown in the Regulatory Accounting Statements is $101.3 million (real 2013 dollars).

5.3 2014–2015 forecast revenue requirement

As there has been no determination of revised charges under clause 5I for the years 2013 to 2015, clause 4.1k(ii)(B)(2) of the Order requires that the revenue be determined by multiplying the initial charges for that year determined in accordance with clauses 5D and 5E by the forecast quantities of the service category to which the charges related for that year.

AusNet Services has provided forecast quantities for each year in the templates. AusNet Services' forecast tariff revenue requirement for 2014 to 2015 is shown in Table 5.1.

Table 5.1: Forecast AMI Revenue 2014–2015 ($m, nominal)

	2014	2015
Forecast Tariff Revenue	123.1	162.6

5.4 Total Revenue requirement

Tables 5.2 and 5.3 summarise the Total Revenue Requirement for the period 2012–2015.

Table 5.2: Total Revenue Requirement ($m, nominal)

	2012 Actual	2013 Actual	2014 Forecast	2015 Forecast
Return on Capital	28.2	32.5	30.0	30.4
Return of Capital (Depreciation)	34.4	50.5	46.9	48.7
Operating & Maintenance	40.2	40.5	40.3	40.3
Carry forward from 2009-11	10.6	–	–	–
Building Blocks Revenue Requirement	**113.4**	**123.5**	**117.1**	**119.3**
Tariff Revenue	**83.6**	**101.3**	**123.1**	**162.6**

Note: The forecast operating and maintenance expenditure above does not reflect any additional costs as a result of the findings of the Technical Review of Ausnet Services' AMI solution.

Table 5.3: Total Revenue Requirement ($m, real 2014)

	2012 Actual	2013 Actual	2014 Forecast	2015 Forecast
Return on Capital	29.4	33.2	30.0	29.6
Return of Capital (Depreciation)	35.9	51.6	46.9	47.5
Operating & Maintenance	41.9	41.4	40.3	39.3
Carry forward from 2009–2011	11.0	–	–	–
Building Blocks Revenue Requirement	**118.2**	**126.1**	**117.1**	**116.5**
Tariff Revenue	**87.1**	**103.5**	**123.1**	**158.7**

Note: The forecast operating and maintenance expenditure above does not include any additional costs as a result of the findings of the Technical Review of Ausnet Services' AMI solution.

6 Regulated Services Charges

6.1 2014 Charges

AusNet Services' Regulated Services charges for 2014 are set out in Table 6.1 below.

Table 6.1: Current Metering Charges ($2014, GST exclusive)

Annual Metering Charge	2014
Single phase, single element *	$160.21
Single phase, two element with contactor	$184.10
Multi-phase	$222.42
Multi-phase, with contactor	$246.73
Multi-phase current transformer connected	$317.70

* This charge applies to NMI's where a single phase, single element with contactor meter is installed.

6.2 Reduced Charges

As stated in Section 2.3 Clause 4.1(o) requires that the Net Present Value of the Regulated Services costs be equal to the Net Present Value of the revenue earned. If AusNet Services was to apply this Clause customers would experience large year on year price increases and decreases. In order to provide a smooth transition for customers, AusNet Services is proposing in this submission the following price changes or x-factor.

Clause 4.1(p) of the Order allows:

> *if a distributor proposes charges ("**reduced charges**") that have the effect that the distributor does not recover, in any year in the period from 1 January 2010 to the End Date, the net present value of the total costs incurred by the distributor for Regulated Services in that year, the Commission may approve those reduced charges. For the purposes of this paragraph, costs and revenues shall be determined in the manner provided by clause 4.1(o). If the Commission does not approve the reduced charges, then the charges of the distributor must be determined in accordance with clause 4.1(o).*

AusNet Services is aware of customers' concern regarding the cost of the AMI program and as such is proposing to not recover the net present value of the total costs incurred in 2012 and 2013 until 2014 and 2015.

AusNet Services' proposed price movements for 2015 are set out in Tables 6.2 and 6.3 below.

Table 6.2: Real Price Movements 2015

	2015
Price Movement / X-factor	-27.23%

Table 6.3: Nominal Price Movements 2015

	2015
Price Movement / X-factor	-30.37%

Note: Under the CPI-X pricing regime a negative X- factor equates to a price increase.

6.2.1 Revised Charges (2015)

Clauses 5G.1 and 5I.1 of the Order require a revision of Regulated Services Charges for 1 January 2015 to be determined in accordance with Clause 4 and Clause 5I.

The note to Clause 4.1 of the Order summarises the approach to setting charges to apply to the year 2015 as being based on actual expenditures and revenues known to 2013 and revised forecasts for 2014 and 2015.

AusNet Services' proposed subsequent Regulated Services charges for 2015 is set out in Tables 6.4 and 6.5 below.

Table 6.4: Regulated Services Charges ($Nominal, GST exclusive)

Annual Metering Charge	Forecast NMI's at end of 2014	2015
Single phase, single element *	398,557	$208.87
Single phase, two element with contactor	156,549	$240.02
Multi-phase	84,284	$289.98
Multi-phase, with contactor	42,293	$321.67
Multi-phase current transformer connected	3,826	$414.20

* This charge will apply to NMI's where a single phase, single element with contactor meter is installed.

Table 6.5: Regulated Services Charges ($2014, GST exclusive)

Annual Metering Charge	Forecast NMI's at end of 2014	2015
Single phase, single element *	398,557	$203.84
Single phase, two element with contactor	156,549	$234.23
Multi-phase	84,284	$282.99
Multi-phase, with contactor	42,293	$313.92
Multi-phase current transformer connected	3,826	$404.21

* This charge will apply to NMI's where a single phase, single element with contactor meter is installed.

Attachment 1 – Audit Opinion on 2013 Actual Expenditure

Attachment 2 – Expenditure Excess Application

Advanced Metering Infrastructure

2015 Charges Revision Application – Expenditure Excess Application

FINAL

29 August 2014

About AusNet Services

AusNet Services is a major energy network business that owns and operates key regulated electricity transmission and electricity and gas distribution assets located in Victoria, Australia. These assets include:

- A 6,574 kilometre electricity transmission network that services all electricity consumers across Victoria;
- An electricity distribution network delivering electricity to approximately 660,000 customer connection points in an area of more than 80,000 square kilometres of eastern Victoria; and
- A gas distribution network delivering gas to approximately 572,000 customer supply points in an area of more than 60,000 square kilometres in central and western Victoria.

AusNet Services' purpose is 'to provide our customers with superior network and energy solutions.' The AusNet Services company values are:

- Safety: to work together safely. Protect and respect our community and our people.
- Passion: to bring energy and excitement to what we do. Be innovative by continually applying creative solutions to problems.
- Teamwork: to support, respect and trust each other. Continually learn and share ideas and knowledge.
- Integrity: to act with honesty and to practise the highest ethical standards.
- Excellence: to take pride and ownership in what we do. Deliver results and continually strive for the highest quality.

For more information visit: www.ausnetservices.com.au

Contact

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Executive summary

The regulatory arrangements governing the mandated AMI rollout are set out in the Cost Recovery Order in Council (CROIC). In contrast to previous years, in 2013 AusNet Services' actual expenditure exceeded the budget set by the AER. In these circumstances, the CROIC requires AusNet Services to demonstrate that the 'expenditure excess' has been incurred efficiently, in order for the expenditure to be included in the building blocks and recovered through AMI charges.

This paper, accompanying 2015 Charges Revision Application, sets out the expenditure excess in 2013 and seeks the AER's assessment in accordance with clauses 5I.5 to 5I.9.

The key points in this paper are summarised below.

1. AusNet Services' actual capital and operating expenditure in 2013 exceeded the AER's Approved Budget of $107.2 million by $70.5 million. As explained in this submission, the delay in completing the AMI program has been a major contributory factor to the additional expenditure incurred in 2013.
2. The delivery and costs of the AMI rollout program have been adversely affected by the following external factors:
   - Policy and safety reviews undertaken by the Victorian Government and various agencies;
   - Customer concerns about AMI meters, and issues associated with gaining access to customer sites for the purpose of installing AMI meters; and
   - Market conditions for meter installers.

   These external factors help explain why the AER's budget amount for 2013 has proved to be too low. The Approved Budget for the 2012-15 regulatory period was set in 2011 based on a series of assumptions regarding the structure, schedule and timing of AusNet Services' AMI rollout. These circumstances and assumptions did not eventuate as originally anticipated.
3. The AER's prudency assessment will follow a three-step process:
   - The Approved Budget is automatically included as a building block cost;
   - The expenditure above the Approved Budget (the 'expenditure excess') is subject to a prudency review; and
   - The efficient component of the 'expenditure excess' is added to the Approved Budget and included as a building block cost.
4. To scope the prudency review appropriately, the following points should be noted:
   - The prudency assessment is only focused on the causes of the 'expenditure excess' and the efficiency of that expenditure;
   - The prudency assessment is not concerned with amending or revisiting the approved AER budget; and

- For a particular category of expenditure, where actual expenditure does not exceed the budget amount, or where AusNet Services does not propose to recover an additional amount, no prudency assessment is conducted.

5. AusNet Services' AMI expenditure has been subject to a comprehensive governance and reporting framework that is focused on the efficient delivery of the AMI program.

This final submission is in line with previously provided information to the AER in regards to AusNet Services' Expenditure Excess in 2013, most notably the *Framework and Position Paper* provided to the AER on 2 June 2014.

1. Introduction

In 2006, the Victorian Government mandated the rollout of advanced metering infrastructure (AMI), or 'smart meters', to all Victorian residential and small business electricity customers. The regulatory arrangements relating to the rollout are set out in the November 2008 Cost Recovery Order in Council (CROIC) made under the *Electricity Industry Act 2000* (Vic). The CROIC prescribes the regulatory framework that governs the regulation of metering charges.

On 31 October 2011, in accordance with the CROIC, the AER released its final determination on the 2012–15 budget and charges applications for the Victorian Distribution Network Service Providers (DNSPs).

The CROIC requires each DNSP to submit a Charges Revision Application to the AER by 31 August each year during the 2012–15 budget period. The purpose of a Charges Revision Application is to update the proposed AMI charges that will apply in the following year, based on actual expenditures incurred and any forecast expenditure updates. The AER is required to make a determination of revised charges by 31 October each year.

Table 1: AMI expenditure in 2013 ($M)

	Approved Budget	Actual Expenditure	Expenditure Excess
Capital Expenditure	$75.8M	$137.1M	**$61.3M**
Operating Expenditure	$31.4M	$40.5M	**$9.1M**
Total Expenditure	**$107.2M**	**$177.7M**	**$70.5M**

Table 1 outlines that AusNet Services' actual total expenditure exceeded the budget in 2013 by $70.5M. In these circumstances, the CROIC requires AusNet Services to demonstrate that the additional expenditure (which is referred to in the CROIC as 'expenditure excess') has been incurred efficiently. The 'expenditure excess' will be incorporated into the building blocks and recovered through AMI charges if the AER determines that the expenditure is efficient.

The remainder of this paper is structured as follows:

- Section 2 sets out AusNet Services' prudency assessment approach, having regard to the relevant CROIC provisions.
- Section 3 presents a provisional analysis of expenditure by category, which provides a basis for determining AusNet Services' prudent expenditure for 2013.
- Section 4 provides background information on the factors that have affected the delivery of the AMI rollout program.
- Section 5 provides an overview of AusNet Services' governance and project management arrangements.

2. AusNet Services' prudency assessment approach

The purpose of this section is to set out AusNet Services' prudency assessment approach including:

- the definition of prudency in the CROIC; and
- the proposed scope of the prudency analysis in accordance with clause 5I of the CROIC.

2.1 Definition of prudency

As noted in section 1, the CROIC allows the AER to include expenditure excess in the building blocks if the DNSP satisfies the AER that the expenditure is prudent. Clause 5I.7A defines expenditure as prudent where it "reasonably reflects the efficient costs of a business providing the Regulated Services".

The CROIC provides guidance on the matters that the AER may take into account when determining whether an 'expenditure excess' reasonably reflects the efficient costs of a business providing the Regulated Services. In particular, clause 5I.8 lists the following matters that the AER may take into account:

- The information available to the DNSP at the relevant time.
- The nature of the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems.
- The nature of the rollout obligation.
- The state of the technology relevant to the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems.
- The risks inherent in a project of the type involving the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems.
- The market conditions relevant to the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems.
- Any metering regulatory obligation or requirement.
- Any other relevant matter.

In addition to the above matters, where the 'expenditure excess' is a contract cost, the AER may also consider whether the contract was let in accordance with a competitive tender process. In considering this matter, clause 5I.9 requires that the AER must have regard to:

- the tender process for that contract;
- whether there has been compliance with that process; and
- whether the request for tender unreasonably imposed conditions or requirements that prevented or discouraged the submission of any tender that is consistent with the selection criteria.

AusNet Services' prudency assessment considers all of the matters set out above to the extent they are relevant to particular expenditure categories.

2.2 Proposed scope of the prudency analysis

The CROIC operates so that actual expenditure in a particular year is automatically included in the building blocks if it does not exceed the Approved Budget for that year (clause 5I.2). As explained in section 2.1, an 'expenditure excess' occurs if the total budget is exceeded. An 'expenditure excess' is defined in relation to total expenditure in a particular year, as set out in clause 5I.5 below.

> *"Where pursuant to clause 5I.2 or 5I.4 the Commission determines that actual Total Opex and Capex or the balance actual Total Opex and Capex for year t-1 exceeds the Approved Budget for that year in the case of the subsequent AMI budget period, the Commission may…include in the building blocks the amount of that excess in expenditure (the 'expenditure excess')."*

In terms of assessing whether the 'expenditure excess' should be included in the building blocks, clauses 5I.7 and 5I.7A state that:

- The Commission may include in the building blocks an 'expenditure excess' if the DNSP satisfies the Commission that the 'expenditure excess' is prudent; and
- The 'expenditure excess' is prudent where that 'expenditure excess' reasonably reflects the efficient costs of a business providing the Regulated Services.

In effect, the CROIC requires that the prudency assessment for 2013 follows a three-step process:

1. The Approved Budget is automatically included as a building block cost;
2. The expenditure above the Approved Budget (the 'expenditure excess') is subject to a prudency review; and
3. The efficient component of the 'expenditure excess' is added to the Approved Budget and included as a building block cost.

In addition, the prudency review should be scoped as follows:

- The prudency assessment is only focused on the causes of the 'expenditure excess' and the efficiency of that expenditure;
- The prudency assessment is not concerned with amending or revisiting the Approved Budget; and
- For a particular category of expenditure, where actual expenditure does not exceed the budget amount, or where AusNet Services does not propose to recover an additional amount, no prudency assessment is conducted.

3. Analysis of expenditure by category

This section includes an analysis of expenditure by category, including the cost drivers for the expenditure excess. Table 2 presents the actual and budget expenditure by category, and those items that will be subject to a prudency assessment.

Table 2: Actual and budget AMI expenditure for 2013 (nominal $M)

	Approved Budget	Actual Expenditure	'Expenditure Excess'	Prudency assessment provided in
CAPITAL EXPENDITURE				
Meter Supply	37.7	60.1	**22.4**	Section 3.1
Meter Installation	16.6	36.5	**19.9**	Section 3.2
Communication Infrastructure and Installation	14.2	31.5	**17.3**	Section 3.3
IT Capex	7.3	9.0	**1.7**	Section 3.4
TOTAL CAPITAL EXPENDITURE	**75.8**	**137.1**	**61.3**	
OPERATING EXPENDITURE				
Meter Services	0.6	0.5	**(0.1)**	Assessment not required
Meter Reading	2.4	6.8	**4.4**	Section 3.5
Data Management	4.1	3.8	**(0.3)**	Assessment not required
Communications Infrastructure Maintenance	5.0	7.3	**2.3**	WiMAX budget does not require assessment*
IT Opex	8.4	6.4	**(2.0)**	Assessment not required
AusNet Services PMO	8.1	11.7	**3.6**	Section 3.6
Customer Service Cost	0.5	0.7	**0.2**	Section 3.7
Overheads and Indirect Costs	2.3	5.9	**3.5**	Section 3.8
Extra Accommodation	-	(2.7)	**(2.7)**	Assessment not required
Debt Raising Costs	-	-	-	Assessment not required
TOTAL OPERATING EXPENDITURE	**31.4**	**40.5**	**9.1**	
TOTAL EXPENDITURE	**107.2**	**177.7**	**70.5**	

Note: May not add due to rounding.

* *AusNet Services is not seeking assessment of the expenditure excess associated with Communications Infrastructure Maintenance operating expenditure as this is currently subject to Federal Court review.*

This category analysis is supported by an ex-post prudency assessment of AusNet Services' AMI expenditure in 2013 undertaken by Deloitte Access Economics (Deloitte) in June 2014 (see Attachment 2).

In particular, the report sets out Deloitte's views on whether the expenditure in excess of AusNet Services' budget incurred in 2013 is *prudent* as defined by the CROIC. Deloitte has found that $68.4M of the $70.5M in excess meets the prudency criteria set out in the CROIC. In coming to this view, Deloitte has had regards to the nature of the CROIC and the requirements of clause 5I.8. Table 3 summarises Deloitte's findings.

Table 3: Findings of Deloitte Ex-post Prudency Assessment

Category	Excess ($M)	Cost drivers	Deloitte's view	Reference to prudency criteria
Meter Supply Capex	**$22.4M**	The expenditure excess in this category relates to higher than anticipated meter purchases in 2013, which resulted from program delays in 2011 and 2012 and were largely outside of AusNet Services' control. The delays were primarily caused by the politicised nature of the AMI rollout, customer resistance and technical faults, all of which were inherent risks in the AMI program.	$22.4M of the excess meets the prudency tests	Clauses 5I.8(c), 5I.8(d) & 5I.8(e).
Meter Installation Capex	**$19.9M**	The expenditure excess in this category relates to higher than expected meter installations in 2013, resulting from delays in 2011 and 2012, as well as increased average meter installation costs. Average installation costs primarily increased due to tight labour market conditions which were exacerbated by the mandatory nature of the rollout obligation, increased wasted visit rates due to customer resistance to the AMI Program and higher than expected rate of meter board defects.	$19.9M of the excess meets the prudency tests	Clauses 5I.8(c), 5I.8(d), 5I.8(e), 5I.8(f) & 5I.8(g).
Communication Infrastructure and Installation Capex	**$17.3M**	The expenditure excess in this category relates primarily to higher than expected costs of site acquisition, site negotiations, design modifications and stakeholder management. These issues stemmed from customer backlash to the installation of towers in community areas as well as to the AMI program in general, which was exacerbated by the political environment. Deloitte considers that the initial budget for these towers was underestimated.	$17.3M of the excess meets the prudency tests	Clauses 5I.8(b), 5I.8(c), 5I.8(d) and 5I.8(e).

Category	Excess ($M)	Cost drivers	Deloitte's view	Reference to prudency criteria
IT Capex	**$1.7M**	The expenditure excess in this category relates to higher than anticipated IT capex due to under forecasting the expenditure requirements, as well as the costs of dealing with technical challenges with the IT systems themselves. While some of this excess expenditure is due to factors beyond AusNet Services' control, some of it appears to be due to project management of the IT capital program. Deloitte considers that 50% of the expenditure excess in this category is likely to be prudent.	$0.8M of the excess meets the prudency tests	Clauses 5I.8(c), 5I.8(d), 5I.8(e) & 5I.8(g).
Meter Reading Opex	**$4.4M**	The expenditure excess in this category relates to higher than expected meter reading requirements. These have been driven by factors including a low rate of logical conversion in 2011 and 2012; delays caused by the Government review of the mandated AMI rollout, and the inability for to disconnect customers refusing an AMI meter under the Customer Issues Management Protocol.	$2.9M of the excess meets the prudency tests	Clauses 5I.8(c), 5I.8(d), 5I.8(e) & 5I.8(g)
AMI PMO (Opex)	**$3.6M**	The expenditure excess in this category relates to the need to hire a greater number of PMO staff than budgeted to deal with the issues surrounding the AMI program. Whilst the number of FTEs was higher than anticipated, the average wage paid for PMO staff was $47,275 lower than the commercial standard determined by the AER.	$3.5M of the excess meets the prudency tests	Clauses 5I.8(c), 5I.8(d), 5I.8(e) & 5I.8(f).
Customer Service Opex	**$0.2M**	Expenditure excess in this category relates to the need to respond to community concerns surrounding the AMI program, much of which arose due to the politicised nature of the program.	$0.2M of the excess meets the prudency tests	Clauses 5I.8(c) & 5I.8(g).
Overheads and Indirect Costs (Opex)	**$2.7M**	Expenditure excess in this category increased because managers and executives involved in the AMI Program spent more time managing the regulatory and technical issues that arose during the AMI rollout, as well as the higher than anticipated number of meter installations in 2013.	$2.6M of the excess meets the prudency tests	Clauses 5I.8(c), 5I.8(d), 5I.8(e), 5I.8(f) & 5I.8(g).

Category	Excess ($M)	Cost drivers	Deloitte's view	Reference to prudency criteria
Sundry operating expenditure (Opex)	**$0.9M**	Regulatory and policy costs associated with the AMI Program have exceeded the original budget determined by the AER in 2011, due to the large number of policy and regulatory changes which have occurred since the overall review of the AMI Program was completed.	$0.9M of the excess meets the prudency tests	Clauses 5I.8(c), 5I.8(e), & 5I.8(g).

3.1 Meter supply capital expenditure

	Approved Budget	Actual Expenditure	'Expenditure Excess'
Meter Supply Expenditure in 2013	$37.7M	$60.1M	**$22.4M**
Volume of Metering Units	Regulatory allowance of 153,795 metering units purchased in 2013[1]	AusNet Services purchased 216,031 complete metering units in 2013	AusNet Services purchased an additional 62,236 metering units **[excess of $15.2M]**
Metering Unit Cost Price	Approved Budget set at $245 per metering unit	AusNet Services incurred an average cost of $254.50	AusNet Services incurred a unit cost difference of $9.50 **[excess of $2.1M]**
Increase in Stock of Metering Hardware	-	AusNet Services purchased an additional 44,946 stand-alone meters	AusNet Services purchased an additional 44,946 meters **[excess of $5.1M]**

The AER's budget included an allowance of $245 for a complete metering unit (including metering hardware, communications card, Zigbee chip and antenna). In 2013, it was anticipated in the AER's budget, that AusNet Services would procure 153,795 metering units.

In 2013, AusNet Services incurred $60.1M of expenditure associated with the supply of metering equipment.[2] This was associated with the procurement of 216,031 metering units at an average unit cost rate of $254.50. In 2013, AusNet Services also purchased an additional 44,946 stand-alone meters.

AusNet Services' expenditure excess is associated with:

- additional metering hardware costs of $9.50 as per the contracted arrangements with 3 external vendors; and
- additional volumes of metering equipment purchased.

[1] Metering unit includes metering hardware, communications card, Zigbee chip and external antenna.

[2] Ibid.

3.1.1 Metering hardware costs

AusNet Services in 2013 incurred an average unit cost rate of $254.50 including the metering hardware, communication card, external antenna and Zigbee chip. This hardware was procured according to contracts entered into by AusNet Services with three vendors – Landis & Gyr, Ericsson and Panorama. A summary of each contract agreement, including the term of the agreement and scheduled rates is outlined in Table 4.

Table 4: Contracts for the procurement of metering hardware

Vendor	Equipment	Date of agreement	Term	Scheduled rates
Landis & Gyr	Modular meters	September 2012	5 years	$81.55 – $227.20 (dependent on meter variant)
	WiMAX communication cards	September 2012	5 years	$121.00
Ericsson	3G communication cards	April 2013	5 years	$148.50
Panorama	WiMAX external antennas	June 2010	5 years	$9.09
	3G external antennas	August 2013	N/A	$13.47 – $13.88 (dependent on antenna length)

The expenditure excess in 2013 associated with the additional cost of metering hardware, above the Approved Budget, is approximately $2.1M.

3.1.2 Volume of equipment purchased

Figure 1 illustrates AusNet Services' AMI meter deployment schedule over the 4-year rollout period.

Figure 1: AusNet Services' AMI deployment schedule

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Due to the 2011 Government Review of the AMI rollout AusNet Services experienced delays to its meter deployment schedule. The 13 months of uncertainty in particular between November 2010 and December 2011, led to increased customer opposition, increased refusals and no access sites. This delay is highlighted further in section 4 of this paper.

As illustrated in Figure 1 above, AusNet Services experienced a significant decline in the number of meter installations during mid-late 2011. This led to a 'catch up' in 2012 and 2013. In 2013 in particular, AusNet Services purchased an additional 62,236 complete metering units and an additional stand-alone 44,946 meters.

The expenditure excess in 2013 associated with the additional meter volumes is approximately $20.3M. This is based on the budget approved by the AER for meter supply unit rates.

3.1.3 Prudency assessment

Deloitte's ex-post prudency assessment found that all of the excess expenditure in this category is prudent. In particular, Deloitte found that the expenditure excess in this category relates to the following prudency criteria:

- **Nature of the rollout obligation (5I.8(c)):** The nature of the policy uncertainty surrounding the AMI Program and the customer backlash caused meter rollout delays. The mandatory rollout schedule necessitated a higher number of meter purchases in 2013 than anticipated in the AER Budget.
- **State of the technology (5I.8(d)):** The overheating fault in 2011 contributed to delays in meter supply, contributing to higher than expected meter purchases in 2013.
- **Inherent risks in the AMI project (5I.8(e)):** Technical faults and extensive project delays are an inherent risk when procuring hardware for technologically based projects on the scale of the AMI Program.

3.2 Meter installation capital expenditure

	Approved Budget	Actual Expenditure	'Expenditure Excess'
Meter Installation Expenditure in 2013	$16.6M	$36.5M	**$19.9M**
Volume of Metering Units	Regulatory allowance of 142,589 meters installed in 2013	AusNet Services installed 223,633 meters in 2013	AusNet Services installed an additional 81,044 meters **[excess of $9.4M]**
Installation Price	Approved Budget set at $116 per installation	AusNet Services incurred an average cost of $165 per installation	AusNet Services incurred an additional $49 per installation **[excess of $10.5M]**

In 2013, AusNet Services incurred $36.5M of expenditure associated with the installation of metering equipment.[3] This was associated with the installation of 223,633 meters at an average unit cost rate of $165.

AusNet Services' expenditure excess in 2013 is associated with:

- the installation of an additional volume of meters; and
- a rate increase of $49 per meter installation.

3.2.1 Meter installation volumes

As explained in section 3.1, AusNet Services' meter deployment experienced a decline in 2011 following the announcement in November 2010 of a review of the AMI rollout by the incoming Coalition Government. The 'wasted visit' rate – due to customer refusals and no access sites – peaked in 2011 at 67% (refer to Figure 1).

In order to ensure compliance with the rollout milestones in the CROIC, a larger number of meter installations were performed in 2013 in order to meet the 31 December target.

The expenditure excess in 2013 associated with the installation of additional meter volumes is approximately $9.4M. This is based on the budget set by the AER in 2011 for meter installation unit rates.

3.2.2 Meter installation unit rate

The expenditure excess in 2013 associated with an increase in meter installation unit rates is approximately $10.5M. Meter installation unit rates in 2013 were 42% greater than anticipated in 2011 due to:

- the tight labour market for meter installations due to a shortage of meter installers; and
- the additional work required at the meter board due to advice from Energy Safe Victoria (ESV) in October 2012.

[3] Metering equipment includes meter hardware, communications card, zigbee chip and antenna.

Market conditions of meter installers in 2013

In December 2012, AusNet Services received advice from one external installation provider, Skilltech, that the previously agreed contract rates were no longer commercially viable. At this time, a rate increase of 17% was proposed to AusNet Services. Skilltech concluded that the rollout had varied greatly from that envisaged at the time of tendering for this work.

At this time, as a prudent measure, AusNet Services consulted with other installation providers to understand the current market rates. The market rates provided by other installation providers were similar to the rates charged by AusNet Services' 2 external service providers. There was also a risk that the deployment targets would not be met by a new service installation provider.

In order to reduce the expected costs and minimise the risk of the deployment targets not being met, strategies such as a partial insourcing, productivity and commitment incentive schemes were introduced. Select Solutions started performing meter installations for AusNet Services in March 2013, with Skilltech transitioned off the deployment in August 2013. In addition, the number of installations provided by Electrix also significantly reduced. As illustrated by Figure 2, by December 2013, over 80% of AusNet Services' metering installations were performed by Select Solutions.

Figure 2: Meter installation rates by service provider in 2013

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Change in regulatory compliance requirements

In October 2012 ESV provided guidance to AusNet Services in relation to compliance with the minimum requirements of AS/NZS3000. This related specially, to holes in meter boards found during the AMI rollout. ESV identified a risk regarding fire and electrocution from holes in the meter boards. Due to these risks, ESV required that all holes greater than 12mm must be covered with a patch to prevent contact with single insulated cables behind the meter board.

This advice from the safety regulator led to meter installation costs increasing in 2013. In order to comply with the Australian Standard, it was determined that regardless of whether a hole was pre-existing or newly created, it was to be assessed and covered if required.

3.2.3 Prudency assessment

Deloitte's ex-post prudency assessment found that all of the excess expenditure in this category is prudent. In particular, Deloitte found that the expenditure excess in this category relates to the following prudency criteria:

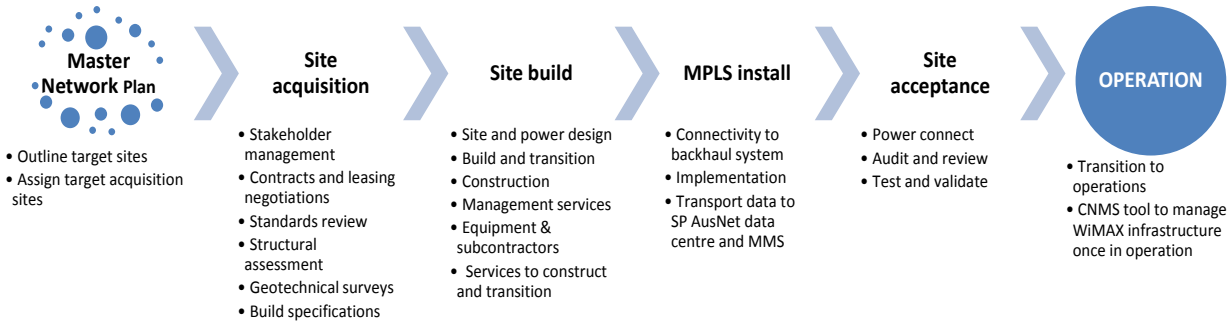
- **Nature of the rollout obligation (5I.8(c)):** Significant delays were caused by the policy uncertainty and the customer issues surrounding the AMI Program. Costs associated with these delays were exacerbated by the obligation to make best endeavours to complete AMI installations by the end of 2013.
- **State of the technology (5I.8(d)):** The installation supply chain was disrupted by the meter procurement issues relating to the 2011 meter overheating fault, leading to delays that necessitated higher than expected meter installations in 2013.
- **Inherent risks in the AMI project (5I.8(e)):** The issues relating to meter procurement, customer resistance, regulatory obligations and tight labour market conditions are inherent risks of projects such as the AMI rollout, particularly given the mandatory nature of the project timeline.
- **Market conditions (5I.8(f)):** The tight labour conditions faced by the Victorian electricity distributers during the AMI rollout put upward pressure on per meter installation costs.
- **Regulatory obligation (5I.8(g)):** The ESV requirement for the coverage of meter board holes increased the average installation costs faced by AusNet Services in 2013 beyond the forecast budget.

3.3 Communications network infrastructure capital expenditure

	Approved Budget	Actual Expenditure	'Expenditure Excess'
Communications Infrastructure Expenditure in 2013	$14.1M	$31.5M	**$17.4M**
Volume of towers completed in 2013	17 towers completed in 2013	59 towers completed in 2013	Capital works deferred into 2013 **[excess of $10.9M]**
Total costs of capital works program (2009–13)	Construction of 89 towers at an average of cost of $762,921 per tower	Construction of 88 towers at an average of cost of $845,454 per tower	Increased construction costs per tower of $82,532 **[excess of $6.5M]**

The AER approved expenditure of $67.9M for the period 2009–13 for the development and implementation of a communication facility between individual customer installations and AusNet Services' information and control systems. The stages of infrastructure development are illustrated in Figure 3.

Figure 3: Stages of communication network infrastructure development



As outlined in Table 5, AusNet Services incurred expenditure of $74.4M during 2009 to 2013 for this capital works program.

Table 5: Communications Network Infrastructure Expenditure 2009–2013

	2009	2010	2011	2012	2013	2009–13	Towers
Approved Budget ($M)	$0.89	$8.3	$15.9	$28.7	$14.1	**$67.9**	89
Actual ($M)	$0.89	$8.3	$8.9	$24.8	$31.5	**$74.4**	88
Variance	-	-	($7.0)	($3.9)	$17.4	**$6.5**	(1)

In 2013 AusNet Services incurred an expenditure excess above the Approved Budget of $17.4M due to:

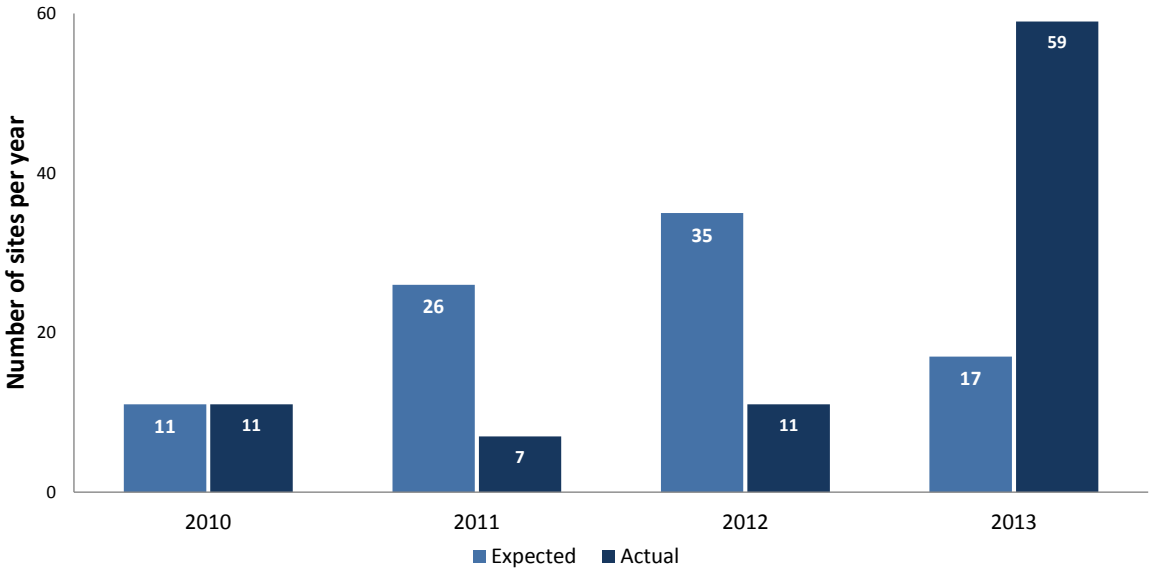
- deferred capital works regarding communication towers (delays from previous years); and
- increased construction costs due to delays and community backlash to the AMI rollout.

Each of these is discussed in turn below.

3.3.1 Deferred capital works program

Figure 4 illustrates the delay in AusNet Services' communications network infrastructure deployment between 2010 and 2013.

Figure 4: Communications network deployment schedule



Community backlash associated with the Victorian AMI rollout resulted in the delay in the communications network deployment plan. Construction was halted on some sites due to neighbour concerns and extensive lobbying with local media, local government and state government representatives. As a result, some sites required modification after their construction to appease neighbours or the wider community including sound and visual screening.

The expenditure excess in 2013 associated with deferred capital works is approximately $10.9M. This is calculated using the approved cost per site as determined by the AER in 2011.

3.3.2 Increased costs of construction

Due to the complex nature of this capital works program, the cost of each communication site varies heavily depending on the site specifics, with only material costs remaining similar across sites. Build, planning and labour costs, vary considerably on a site-by-site basis.

In the majority of the sites, the actual site construction costs exceeded the contracted estimate. For some sites, the excess cost can be explained by the change to more expensive site type. For example:

- the site with the greatest excess cost, *Korumburra*, was anticipated to be constructed on an existing radio tower site but was instead built on a greenfield site; and
- the sites in *Doreen* and *Bright* were envisaged to be constructed on AusNet Services-owned land but both were built as greenfield sites.

The expenditure excess in 2013 associated with increased construction costs in 2013 is approximately $6.5M.

3.3.3 Prudency assessment

Deloitte's ex-post prudency assessment found that all of the excess expenditure in this category is prudent. In particular, Deloitte found that the expenditure excess in this category relates to the following prudency criteria:

- **Nature of the provision, installation, maintenance and operation of the AMI and associated systems and services (5I.8(b)):** Community resistance to the AMI rollout program resulted in increased site acquisition costs, lease renegotiations, tower redesigns and site relocations.
- **Nature of the rollout obligation 5I.8(c)):** The mandatory nature of the rollout program, and the political environment, weakened AusNet Services' bargaining power in responding to these situations.
- **Inherent risks in the AMI project (5I.8(e)):** The issues relating to site acquisition, community engagement, site redesigns, relocations are inherent risks of projects such as the AMI rollout, particularly given the program involved installing towers in built-up areas.

3.4 IT capital expenditure

	Approved Budget	Actual Expenditure	'Expenditure Excess'
IT Capital Expenditure in 2013	$7.3M	$9.0M	**$1.7M**
	Additional 6 activities required in 2013 that were not anticipated when the Approved Budget was determined		

The implementation of the AMI Program has required new and augmented IT systems particularly the Network Management System (NMS) and core Business Systems:

- The NMS (comprising the Communications Network Management and Meter Management Systems) provides an interface between different environments which constitute the overall information systems; and
- The business systems deliver the required functionality and service level performance to meet ongoing business needs (including Meter Data Management System, Customer Information System and Enterprise Application Integration).

The implementation of AMI with increased meter data volumes and functional complexity has a direct impact on a distributor's IT back office systems.

AusNet Services utilises a cost allocation model to enable it to allocate only those aspects of its IT capital expenditure which are specifically addressing AMI requirements. The model, approved by the AER in 2010, employs five methods of cost allocation, namely:

- Functional allocation – high level functional requirements assessed to evaluate alignment to AMI requirements.
- Interface allocation – high level interfaces evaluated to determine if they were created specifically to support AMI requirements.
- Hardware size allocation – hardware apportioned to each application, then the application's AMI allocation was applied to the apportioned hardware.
- Scope allocation – reviewed scope of activities to evaluate the alignment to the AMI requirements.
- Other allocations – applied to projects with no costs or have inherent business logic to justify the cost allocation.

In 2013, AusNet Services incurred $9M of IT capital expenditure in line with the above cost allocation methodology, slightly in excess of the regulatory allowance. This expenditure excess is associated with 6 capital expenditure activities which commenced in 2013 and will continue to be developed and implemented in 2014. Each of these activities is discussed in Table 6.

Table 6: Additional IT capital expenditure activities required in 2013

Activity	Scope of works in 2013
Amendments to the Customer Information System (CIS)	This included application development and test planning and execution. The requirement surrounding this activity was greater than originally anticipated.
Release management	This activity encompassed the processes responsible for planning, scheduling and controlling the build, test and deployment of releases, and for delivering new functionality required by the business while protecting the integrity of existing services. This work was not accounted for in AusNet Services' Approved Budget.
Performance reporting and testing	This activity included: • the development of a test strategy for the AMI solution; • the rectification of defects identified during testing; • a test readiness review; and • test reporting including traceability of testing to business requirements. This work was not accounted for in AusNet Services' Approved Budget.
Amendments to the Network Management System (NMS)	This activity included: • the implementation of event management, performance management, fault management and correlation management of the NMS; • the implementation of High Availability and Disaster Recovery (HADR) requirements; • application design and design validation of existing communication network; and • alignment of build outcomes to AMI solution architecture and operational support. This work was not accounted for in AusNet Services 'Approved Budget.
Data warehouse	To manage the additional volumes of interval data associated with AMI, a data warehousing capability was developed to progress functionality associated with data analysis and reporting. AusNet Services developed this capability with particular focus on reporting, data storage, data cubes, data processing; and end user support. This work was not accounted for in AusNet Services' Approved Budget.
Enterprise Application Integration (EAI)	This activity included interface design and infrastructure requirements and interface enhancements, test planning and execution. This work was not accounted for in AusNet Services' Approved Budget.

3.4.1 Prudency assessment

Deloitte's ex-post prudency assessment found that 50% of the excess expenditure in this category is prudent. In particular, Deloitte found that the expenditure excess in this category relates to the following prudency criteria:

- **Nature of the rollout obligation (5I.8(c)):** AusNet Services was required to install new systems to support the AMI meter data, requiring substantial investments in IT capex over the rollout period. Delays in the program and unanticipated technical problems have led to excess expenditure, which was exacerbated by the mandatory nature of the rollout obligation and the timeframes in the OIC.
- **State of the technology (5I.8(d)):** The considerable technical challenges faced by AusNet Services in the AMI Program relate to the fact that the technology being employed was cutting edge and implemented at a large scale within a defined

timeframe. In Deloitte's view, under such circumstances cost overruns are to be expected.

- **Inherent risks in the AMI project (5I.8(e)):** There are inevitably cost risks associated with a cutting edge technology project, the implications of which are difficult to forecast. Delays in the rollout caused by the review of the program and customer backlash also impacted on the IT capex program, resulting in more costs being incurred in 2013 than anticipated.
- **Regulatory obligation (5I.8(g)):** The requirement for AusNet Services to continue to operate its existing meter data systems at the same time as shifting customers onto the new AMI systems within a defined timeframe has contributed to the problems faced and the cost overruns.

3.5 Meter reading expenditure

	Approved Budget	Actual Expenditure	'Expenditure Excess'
Meter Reading Expenditure in 2013	$2.4M	$6.8M	**$4.4M**
	Assumed only 10-20% of meters would be manually read during 2013	Throughout 2013, 46-94% of meters were manually read	Higher than anticipated number of meters requiring manual reading

The Approved Budget of $2.4M for meter reading activities in 2013 was based on the assumption that by December 2013 the number of meters requiring manual reading would fall to 72,000 (10% of AusNet Services' metering fleet). As Table 7 outlines, this was significantly different from what was actually achieved. As at 31 December 2013, over 335,000 meters in AusNet Services' network were still being manually read.

Table 7: Number of manually read interval meters

Manually read meters as at	August 2011 submission	Actual
December 2012	160,000 (20% of meter fleet)	~680,000 (~95% of meter fleet)
December 2013	72,000 (10% of meter fleet)	~335,000 (~46% of meter fleet)

The reasons for the additional manual meter reading include:

- delays in the meter rollout (as explained in Section 3.1); and
- delays in the logical conversion of interval meters to remotely read 'Type 5' meters in the National Electricity Market (NEM).

In addition to the above, AusNet Services experienced an increase to the total travel time between meter locations, affecting the productivity of the meter readers across its network. This was due to the geographic disparity of manually read interval meters.

As illustrated in Figure 5, the number of reads performed by each meter reader on a given day decreased by 50%. This lead to an increase to the average cost per meter read.

Figure 5: Meter reading productivity

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3.5.1 Prudency assessment

Deloitte's ex-post prudency assessment found that 75% of the excess expenditure in this category is prudent. In particular, Deloitte found that the expenditure excess in this category relates to the following prudency criteria:

- **Nature of the rollout obligation (5I.8(c)):** Installation delays caused by policy instability and customer resistance to the AMI program decreased the density of meter reading routes and contributed to logical conversion delays.
- **State of the technology (5I.8(d)):** The technical problems with logical conversions.
- **Inherent risks in the AMI project (5I.8(e)):** The issues relating to meter procurement, installation and technical issues are an inherent risk in projects such as the AMI Program.
- **Regulatory obligation (5I.8(g)):** The customer management protocols introduced to deal with refusing customers limited AusNet Services' options for reducing costs through disconnections.

3.6 AMI PMO operating expenditure

	Approved Budget	Actual Expenditure	'Expenditure Excess'
Project Management Office Expenditure in 2013	$8.1M	$11.7M	**$3.6M**
	49 FTEs at an average salary of $165,000	99 FTEs at an average salary of $118,000	Resource requirements increased by 102%, but costs only increased by 44% due to lower average salary than the budget set by the AER

AMI Project Management Office (PMO) is responsible for the management of risks, issues, changes and resources across AusNet Services' AMI Program.

As highlighted in the previous sections of this paper, the AMI Program is significantly more complex than originally anticipated. As the complexity evolved, the management of the program required ongoing changes to the structure and resourcing of the PMO to ensure objectives continued to be achieved.

Table 8: AMI PMO expenditure in 2013

CY2013 NOMINAL	Number of FTEs		Total cost		Average FTE cost	
PMO Stream	*Proposed*	*Actual*	*Proposed*	*Actual*	*Proposed*	*Actual*
TOTAL	49	99	$8,080,880	$11,767,889	$164,916	$118,868

In 2011, the AER's Approved Budget allowed for an average PMO salary of $164,916. Despite an increase to the resource requirements, AusNet Services' PMO costs only increased by 44%. This resulted due to a 30% lower average salary than that envisaged by the AER in 2011.

3.6.1 Prudency assessment

Deloitte's ex-post prudency assessment found that the majority of the excess expenditure in this category is prudent. In particular, Deloitte found that the expenditure excess in this category relates to the following prudency criteria:

- **Nature of the rollout obligation (5I.8(c)):** The AMI PMO had to manage the delays caused by the policy uncertainty and customer issues. Costs associated with these delays were exacerbated by the mandatory nature of the rollout obligation to make best endeavours to complete AMI installations by the end of 2013.
- **State of the technology (5I.8(d)):** The AMI PMO required additional resources to manage the technical issues relating to the AMI Program, which resulted in IT capital program delays.
- **Inherent risks in the AMI project (5I.8(e)):** The issues relating to meter procurement, customer resistance, regulatory obligations and tight labour market conditions are inherent risks of projects such as the AMI rollout, particularly given the

mandatory nature of the project timeline. Consequently, excess PMO costs are also an inherent risk in a project of this type.

- **Market conditions (5I.8(f)):** The PMO required additional resources to manage the adverse market conditions faced by the Victorian electricity distributers, particularly the push for additional rates by meter installation companies, meter shortage issues and the threat of losing installers to competitors.

3.7 Customer services expenditure

	Approved Budget	Actual Expenditure	'Expenditure Excess'
Customer Service Expenditure in 2013	$0.5M	$0.7M	**$0.2M**
	Anticipated that the negative media attention relating to the AMI rollout would reduce in 2013	Continued level of media attention regarding the AMI rollout in 2013	Higher than anticipated level of negative media attention in 2013 and the introduction of the Customer Issues Management Protocol

The customer service expenditure category includes the development and implementation of a customer communications strategy and the provision of customer service and call centre functions to deal with customer queries, complaints and claims relating to the AMI rollout.

In 2013, AusNet Services incurred $0.2M of expenditure in excess relating to customer service activities. This expenditure excess is related to:

- higher than anticipated number of customer queries, complaints and claims; and
- the introduction of the Customer Issues Management Protocol.

Each of these is discussed below.

3.7.1 Customer queries, complaints and complaints

The AER when setting AusNet Services' budget in 2011 acknowledged that the increase in queries and complaints was dependent on the level and nature of media attention relating to the AMI rollout.[4] The AER questioned whether the number of complaints would stabilise following the drop in negative media attention (that is, below the levels experienced in June–July 2011). The AER set AusNet Services' budget for 2013 on the assumption that the negative media attention on the AMI rollout would decrease substantially.

Figure 6 shows that level of negative media attention on the AMI Program remained high during 2012 and 2013.

Figure 6: Level of print media on the AMI Program (2009–2014)

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[4] AER, Victorian Advanced Metering Infrastructure Review, Final Determination – 2012-15 Budget and Charges Application, 31 October 2011, page 68.

Source: Victorian Government, Media Analysis, 18 March 2014 [Confidential]

As shown in Figure 7, the net value of print media on the AMI Program remained negative for most of 2012 and 2013.

Figure 7: Value of print media on the AMI Program (2011–2014)

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The increased interest and customer opposition relating to the AMI rollout has led to a larger than anticipated number of customer enquiries and complaints. As highlighted above, the interest in the AMI rollout – and associated elevated volumes of queries, complaints and claims – continued into 2012 and 2013. The customer opposition to the Victorian mandated AMI rollout is highlighted further in section 4 of this paper.

3.7.2 Customer Issues Management Protocol

Due to the level of customer concerns relating to the rollout of AMI, the Victorian Government in late 2012 determined, that a common industry approach to managing customers in response to these concerns was required. This issue is highlighted further in section 4.3 of this paper.

The introduction of the 'Customer Issues Management Protocol' in November 2012 placed additional regulatory burden on all Victorian distribution businesses tasked with installing smart metering technology. The Customer Issues Management Protocol consists of a three-stage process under which the distribution businesses:

- provide standard information to all customers prior to installation;
- allocate a customer service specialist to those customers who continue to raise concerns or prevent access; and
- provide targeted case management for those customers who do not accept the actions taken to address their concerns.

The introduction of this process increased AusNet Services' customer service costs in 2013 as the Protocol changed the level and nature of customer engagement, particularly for customers who had imminent concerns with the rollout of AMI at these premises, contributing to the expenditure excess incurred.

3.7.3 Prudency assessment

Deloitte's ex-post prudency assessment found that all of the excess expenditure in this category is prudent. In particular, Deloitte found that the expenditure excess in this category relates to the following prudency criteria:

- **Nature of the rollout obligation (5I.8(c)):** Customer service costs rose as a result of community concerns about the AMI program as well as the need to individually manage customers under the Protocol for customer refusals.
- **Regulatory obligation (5I.8(g)):** The implementation of the Protocol for customer refusals significantly increased the role of AusNet Services' customer service team.

3.8 Corporate overheads and indirect costs

	Approved Budget	Actual Expenditure	'Expenditure Excess'
Overheads and Indirect Cost	$2.4M	$5.9M	**$3.6M**
	Expected that the resources and time allocated to the AMI Program would reduce by 2013	The allocation of corporate overheads and management services remained constant in 2013	Unanticipated reputational issues regarding the Victorian AMI rollout required additional stakeholder management

Corporate overheads and indirect costs are allocated to the AMI Program via the Cost Allocation Model approved by the AER in 2010. Three types of AMI associated expenditure are included in this category as outlined in Table 9.

Table 9: AMI associated overheads and indirect costs

	Approved Budget	Actual Expenditure	Expenditure Excess
Corporate Overheads	$1.1	$2.8	$1.6
Management Services (SPIMS)	$1.1	$1.8	$0.7
Indirect Costs	$0.3	$1.4	$1.1
Total ($M)	**$2.4**	**$5.9**	**$3.6**

Each of these cost items is discussed below.

3.8.1 Corporate overheads

In accordance with the cost allocation methodology, AusNet Services allocates many of its costs that are directly attributable to the AMI Program. These costs include corporate relations, market operations and general overheads.

It was anticipated that the effort and time associated with the AMI Program would reduce in 2013. This has not being the case, as the effort and time has remained constant since 2012.

3.8.2 Management services

AusNet Services has previously provided to the AER details of the arrangements and contracts held with related parties as part of its responses to the 2011–15 Electricity Distribution Price Review and most recently, the 2014–17 Transmission Revenue Reset.

In 2005, SPIMS entered into a Management Services Agreement with AusNet Services. SPIMS provides the following strategic and management services:

- employee and business management;
- evaluation of business opportunities;
- management of regulatory compliance and relations with regulators;

- financial and accounting management;
- asset management strategy;
- management of Information Technology;
- public and investor relations;
- legal and company secretarial services; and
- general administration and company reporting.

SPIMS employees provide management and administration services to AusNet Services' electricity transmission, and electricity and gas distribution entities. Therefore, the management service charges are allocated amongst the regulated businesses via the cost allocation methodology.

It was anticipated that as the AMI Program wound down, the time allocated by SPIMS employees would reduce. In contrast, as the AMI Program has experienced in delays in its capital works streams, the level of management time has increased. This included more executive resources, IT resources (as the AMI Program moved within the IT portfolio) and government affairs resources than anticipated in 2011.

3.8.3 Other indirect costs

This cost category includes finance and administration charges, sundry costs and regulatory and government relations resources.

These costs have been higher than the budget due to various policy and regulatory changes not anticipated in 2011. This includes, but is not limited to:

- multiple amendments to the CROIC;
- introduction of the AMI Ministerial Advisory Council (MAC) in 2011;
- the introduction of flexible pricing tariffs in 2013;
- the extension of the Victorian Derogation from the National Electricity Law in 2013; and
- two electro-magnetic field (EMF) studies relating to AMI meters conducted by the Victorian Government.

3.8.4 Prudency assessment

Deloitte's ex-post prudency assessment found that the majority of the excess expenditure in this category is prudent. In particular, Deloitte found that the expenditure excess in this category relates to the following prudency criteria:

- **Nature of the rollout obligation (5I.8(c)):** Delays caused by policy uncertainty and customer responses necessitated increased management time to ensure that best endeavours were made to meet the mandatory rollout timeline. This required considerable time and expertise from regulatory policy staff members to navigate the changes.
- **State of the technology (5I.8(d)):** The technical issues relating to the AMI program needed to be addressed at a management level, requiring more time than anticipated at the time of the Final Determination.
- **Inherent risks in the AMI project (5I.8(e)):** The issues relating to meter procurement, customer management, regulatory obligations, technology and tight labour market conditions are inherent risks of projects such as the AMI rollout, particularly given the mandatory nature of the project timeline. These risks required additional regulatory and policy resources.
- **Market conditions (5I.8(f)):** Dealing with adverse market conditions, particularly in the labour market, required significant increases in management time to manage installation companies and in implementing the meter installation incentive program.
- **Regulatory obligation (5I.8(g**)): The Ministerial Advisory Committee significantly increased management time spent on the AMI project and increased the workload of the regulatory and policy team.

4. Market conditions and risks

4.1 Introduction

As noted in section 2.1, the CROIC provides that a prudency review should consider (amongst other things):

- the risks inherent in a project of the type involving the provision, installation, maintenance and operation of AMI and associated services and systems; and
- the market conditions relevant to the provision, installation, maintenance and operation of AMI and associated services and systems.

The overall costs of any infrastructure project, such as the AMI rollout, will be affected by its inherent risks and the prevailing market conditions. To a large extent these factors are beyond the company's direct control, but have the potential to materially affect project costs and delivery. It is noted that AusNet Services' ability to respond to these external factors was limited due to the time constraints and milestones set in the CROIC. Consequently, it is necessary to have regard to these external factors in assessing whether the actual expenditure incurred is prudent.

It is also worth noting that the complex nature of the rollout program, which includes extensive changes to the DNSP's systems and processes, involves technical risks that need to be actively managed by the project team.

This section examines three external factors that have an overarching impact on the costs and timing of the AMI rollout program for all Victorian DNSPs. These factors are:

- Policy and safety reviews undertaken by the Victorian Government and various agencies;
- Customer concerns about AMI meters, and issues associated with gaining access to customer sites for the purpose of installing AMI meters; and
- Market conditions for meter installers.

4.2 Policy reviews

Given the magnitude of the AMI rollout program, both in terms of cost and its customer impact, it is not surprising that the Victorian Government and Energy Safe Victoria (ESV) have commissioned a number of reviews. These reviews have addressed a wide range of issues, including whether the program should continue[5]; customer protection and the introduction of Time of Use (TOU) network tariffs[6]; an enquiry into privacy arrangements[7]; and safety[8].

These reviews followed the Victorian Auditor-General's findings in 2009, which concluded that further review of the AMI rollout was required.[9] AusNet Services notes that it is reasonable and

5 Deloitte, Department of Treasury and Finance, Advanced metering infrastructure cost benefit analysis, August 2011.

6 Hon Michael O'Brien, MP, Minister for Energy and Resources, Supplementary submission to AER's draft determination 2012-15 Budget and Charges Application, 28 October 2011.

7 Lockstep Consulting, Privacy Impact Assessment, Advanced Metering Infrastructure (AMI), August 2011.

8 Energy Safe Victoria, Safety of Advanced Metering Infrastructure in Victoria, 31 July 2012.

9 Victorian Auditor-General, Towards a 'smart grid'—the roll-out of Advanced Metering Infrastructure, November 2009, page 21.

proper for the Victorian Government and regulatory agencies to conduct reviews in relation to the AMI rollout program. Recognising the novelty and associated uncertainty of the rollout program, clause 14C of the CROIC provides commercial protection for DNSPs against the cancellation of the program, as follows:

> *"If at any time the roll out of advanced metering infrastructure and associated services and systems is ceased all actual expenditure of a distributor to that time and any expenditure relating to the cessation of that rollout (including expenditure arising from the termination of any relevant contract) will be recoverable under this Order by the distributor."*

Notwithstanding the assurance provided by the CROIC regarding cost recovery, uncertainty regarding the future of the program unavoidably has negative consequences for the availability and cost of resources.

While the impact of uncertainty on project costs and delivery is difficult to estimate precisely, the Government's review of the AMI rollout had a direct and tangible impact. In this regard, the following Government announcements are worth noting in particular:

- In November 2010, the incoming Coalition Government stated that the AMI program would be reviewed and the Auditor-General's recommendations implemented, specifically commenting on program governance, customer data protection, and cost recovery.
- In January 2011 the Energy Minister said he was not ruling out a suspension of the program.[10]
- In April 2011, it was announced that a cost-benefit review would be undertaken and the Premier advised that distributors would skip houses of customers who didn't want a meter.
- The review of the AMI Program, delivered in December 2011 endorsed the continuation of the roll out, with minor changes.[11]

The 2011 Government review of the mandated AMI rollout caused over 13 months of uncertainty. Specifically, delays and increased costs arose due to difficulties in gaining appointments and scheduling the installation of AMI meters; the need to modify procurement and contracting arrangements; and requirements to modify IT systems to accommodate legacy tariffs.

The overall impact of these issues on the program schedule and costs was not factored into the AER's budget for the 2012–2015 period.

[10] http://www.abc.net.au/news/2011-01-04/smart-meters-could-be-abandoned/1893266?section=business

[11] http://www.theage.com.au/victoria/smart-meter-rollout-rolls-on-20111214-1otzf.html

4.3 Customer concerns and site access issues

The Energy and Water Ombudsman Victoria (EWOV) has drawn an important link between customer concerns regarding smart meters, and announcements by Government and media coverage:

> *"EWOV received a significant number of calls from customers - following the Council of Australian Governments (COAG) December 2012 meeting - querying whether the Victorian rollout was still mandatory. […] Similarly, media coverage in December 2013 may have also contributed to an increase in Smart Meter cases in the current quarter. The Victorian Energy Minister's recent announcement that consumers may be charged a fee instead of having their electricity supply disconnected for not having a Smart Meter installed, has received significant coverage."* [12]

The EWOV's December 2013 Solar and Smart Meter Update also noted the occurrence of the following events:

- *"19 April 2011 – The Victorian Premier announces a cost-benefit review of the AMI rollout and advised that distributors would skip houses of customers who did not want [a Smart Meter] installed.*
- *24 July 2011 – The Victorian Premier advises in the media that consumers could refuse to have a Smart Meter installed."* [13]

These announcements have contributed to an increase in customer refusals and as such AMI meter installers skipping sites, and having to undertake repeated site visits.

In framing the AMI budgets for the 2012–15 period, the extent of customer concerns regarding the AMI rollout program was consistently under-estimated by the Victorian Government and the DNSPs.

Customer concerns may be categorised as follows:

- Health related issues – concern that the meter will cause health issues because of perceived exposure to electromagnetic or radio frequency emissions;
- Installation and safety issues – concern that the meter is installed by unqualified installers, or the meter is unsafe;
- Privacy and security of data – concern that privacy of data on customers' personal electricity usage patterns will be breached, or on-sold to third parties; and
- Increased costs – concern that installation of smart meters will lead to increased electricity tariffs, driven by the introduction of flexible pricing, and increased service charges associated with recovery of rollout costs.

[12] EWOV, Solar and Smart Meter Update – 1 October 2010 to 31 December 2013, page 4.

[13] Ibid, page 5.

In general, customers have been influenced by inaccurate reports or anecdotes in the media. For instance, ESV has noted that some media reports have resulted in a great deal of largely misplaced community concern[14], while in its report on privacy matters for the DPI, Lockstep Consulting commented that there is a remarkably wide spectrum of consumer concerns.[15]

Unfortunately, while these concerns may be misplaced, they have a direct impact on the costs of the rollout program. In particular, customer concerns ultimately translate into site access issues for AMI meter installers, resulting in skipped sites and repeated site visits.

As a consequence, meter installation productivity rates, the rollout timetable, and total installation costs are all adversely affected. Additional resources are also required to agree and implement protocols to ensure that all customer concerns are addressed consistently and fairly. All of these factors adversely affected AusNet Services' AMI rollout costs in 2012 and 2013.

4.4 Market conditions for meter installers

The delays and additional complexity arising from the 2011 Victorian Government Review and customer access issues have adversely affected the costs of the AMI rollout program. In terms of assessing the efficiency of the cost impact, it is important to have regard to the company's response to these unforeseen events and the prevailing market conditions at that time.

For the reasons described above, all Victorian distributors faced delays in the rollout program during 2013, against the backdrop of a best endeavours obligation to complete the program by 31 December 2013. Inevitably, these circumstances contributed to market conditions that led to higher installation rates. In this context, it is important to note that:

- There were only seven credible meter installation companies serving the Victorian market[16];
- The outstanding meter installations tended to be more problematic, creating cost increases;
- The increasing difficulty in gaining site access, and the increasing number of problematic installations led to lower-than-expected installer productivity rates, and consequential pressure on the profit margins of installation companies;
- Installation companies were seeking to increase their resourcing – by recruiting additional installers – in order to deliver increased installation volumes. Those companies were competing with one another for additional installers in a market that was limited both in terms of its capacity and longevity, resulting in significant upward pressure on the cost of installation labour; and
- The proximity of the 31 December 2013 milestone made it impractical to undertake a competitive tender exercise for meter installation contracts.

In these circumstances, each distributor faced the common risk that increasing the number of installers could only be achieved at the expense of other distributors. In a capacity-constrained

14 Energy Safe Victoria, Safety of Advanced Metering Infrastructure in Victoria, 31 July 2012, section 1.3.

15 Lockstep Consulting, Privacy Impact Assessment, A Report Advanced Metering Infrastructure (AMI), August 2011, page 16.

16 Seven meter installation service providers installed 2,600,000 meters across Victoria in 4 years – ServiceStream, Electrix, Skilltech (formally UXC), Zinfra, BLS (formally Edison Morgan), Select Solutions and Lend Lease.

market with an approaching deadline, the market conditions strongly favoured installers and exposed distributors to escalating installation costs, as noted above.

As explained in section 3, AusNet Services' approach in these market circumstances recognised the risks inherent in the existing market conditions. Consequently, AusNet Services agreed modest increases in installation rates with its existing installation service providers, in order to avoid the risk of a spiralling "bidding war" for scarce resources with the other distributors.

5. Program governance and management arrangements

5.1 Introduction

Program governance and management arrangements are key to ensuring that every dollar of expenditure is incurred efficiently. In light of this observation, this section provides a high level overview of AusNet Services' AMI Program Management process. The AMI Program Management process is designed to deliver the following objectives:

- Establish consistent, robust and high quality processes across the AMI program to proactively manage progress and scope, review deliverables and identify and resolve risks and issues.
- Provide a set of tools and enablers to support efficient execution and control over the program.
- Establish documentation requirements to support robust planning and management of costs, risks, issues, deliverables and dependencies.
- Embed the right decision-making and reporting structures.
- Establish governance forums, processes, roles and responsibilities to ensure control and oversight over key decisions and program changes.
- Establish effective mechanisms for gaining input and buy-in from key stakeholders.
- Ensure the program is aligned with existing ICT Portfolio standards for management and governance.

Sections 5.2 and 5.3 below discuss the governance model and the program management arrangements in 2013.

5.2 AMI Program Governance model

AusNet Services' AMI Program governance model has been established to deliver an overarching management support mechanism to govern and guide each of the AMI project streams, and support clear and transparent decision-making across the program. It facilitates the resolution of program-wide issues and effective risk mitigation. Figure 8 depicts AusNet Services' outcome-driven governance model.

Figure 8: AMI Program Governance Model (2013)

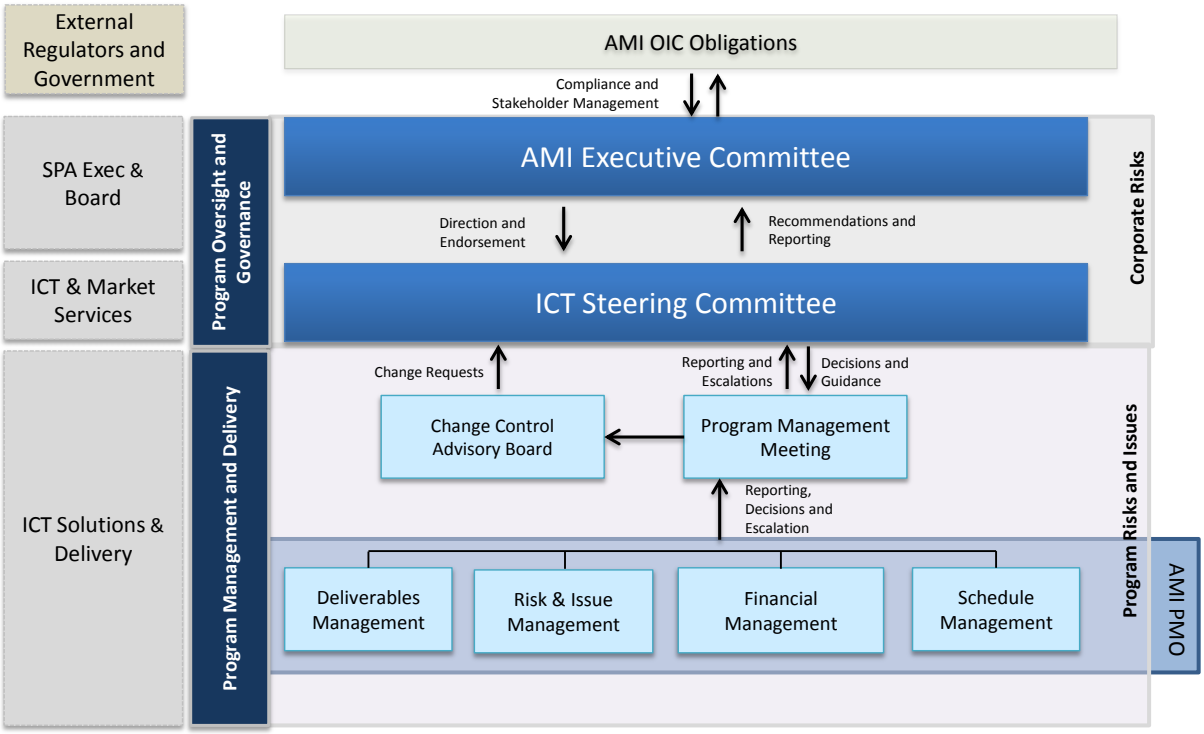


Table 10 outlines the terms of reference for each governance body shown in the figure above.

Table 10: Terms of reference for 2013 governance bodies

Role	Terms of Reference
AMI Executive Committee	► Provide program oversight and governance including costs, risks and issues ► Ensure program alignment with corporate strategy ► Endorse strategic solution direction and major program changes ► Approve decisions with regards to scope, funding and government relations
ICT Steering Committee	► Provide guidance, direction and support to the Business Owner and Program Manager ► Represent the broader business context in project definition and planning, ensuring alignment with organisational and stakeholder goals ► Provide regular reports on program progress to relevant

Role	Terms of Reference
	organisational committees ▸ Endorse and approve scope, deliverables, plans and budget ▸ Manage program scope, timelines and budget as emergent issues arise, approving change requests/variations where appropriate ▸ Provide unified direction and approach ▸ Facilitate the resolution of disputes ▸ Endorse Program closure and / or handover
Change Control Advisory Board (CCAB)	▸ Serve as the decision authority regarding solution and business level outcomes ▸ Asses functional changes e.g. new requirements, enhancements with regards to business alignment, financial impact and risks ▸ Its main objective is to maintain alignment with business strategy and objectives and to ensure that overall the quality, fiduciary and conformance expectations are met
ICT Solutions and Delivery	▸ Accountable for delivery of stream activities, deliverables and milestones ▸ Responsible for day-to-day work stream planning and delivery ▸ Manage work stream resources, timelines and budgets ▸ Identify and report work stream issues, risks and dependencies ▸ Escalate issues, risks and decisions to program management ▸ Identify and document change requests
Program Management Meeting	▸ Manage overall program activities and review program progress ▸ Responsible for day-to-day execution/delivery of Program ▸ Review program level progress against schedule and budget ▸ Manage, resolve and escalate issues and risks ▸ Manage project dependencies and critical milestones

Role	Terms of Reference
	► Project level decision making and resource allocation
AMI PMO	► Deliver a PMO capability across the program; with a specific emphasis on deliverables management, risk and issue management, business case / financial management, resource management and schedule management

5.3 AMI Program Management

AusNet Services' AMI Program management arrangements are focused on delivering efficient outcomes. The project management activities in 2013 included:

- program reporting;
- schedule management;
- financial management and reporting;
- scope management;
- procurement;
- risk and issue management;
- dependency management;
- change control;
- resource management; and
- delivery acceptance.

AusNet Services' AMI Program management arrangements are of a comprehensive nature.

Table 11 describes the scheduled AMI program meetings in 2013, including the purpose of each meeting, its attendees and frequency. Each meeting served as a forum to discuss and resolve issues that arise during the course of the program, and was attended by the relevant program stakeholders and advisors.

Table 11: AMI Program management meetings (2013)

Meeting Name	Purpose	Key Attendees	Frequency
AMI Executive Committee Meeting	► The objective of the meeting is to provide AMI program oversight and control including costs, issues and risks and independently review performance of program. ► It also ensures AMI program alignment with corporate strategy, endorsement of strategic solution direction and major program changes and when necessary approve decisions with regard to scope, funding and government relations.	► Managing Director (Chair) ► General Manager – Asset Management ► General Manager – Select Solutions ► ICT Singapore Power ► Program Sponsor / General Manager ICT ► AMI Program Director ► General Manager – Risk and Assurance ► Independent Non-Executive Directors ► Independent Advisor	Monthly
Change Control Advisory Board (CCAB) Meeting	► The CCAB serves as the decision authority regarding solution and business level outcomes. The CCAB assesses functional changes e.g. new requirements, enhancements with regard to business alignment, financial impact and risks. Its main objective is to maintain alignment with business strategy and objectives and to ensure that overall the quality, fiduciary and conformance expectations are met.	► Program Director ► AMI Solution Project Director ► Solution Governance Lead ► AMI Finance ► Business Process and Requirements Lead and Requirements Manager ► AMI Program PMO Manager and Change Control Analyst	Weekly
Program Management Meeting	► The objective of the meeting is to provide the program with a status update of each release and deployment progress including risk, issues and dependencies. The program financial status is discussed monthly and	► Program Director (Chair) ► Relevant Stream Leads ► Relevant PMO representatives	Weekly

Meeting Name	Purpose	Key Attendees	Frequency
	any exceptions may be discussed on a weekly basis.		
Program Steering Committee Meeting	► The objective of the meeting is to review AMI program performance against budget and timelines, responsible for overall steering of the program, account for issue resolution and risks management and approve changes to scope, cost and delivery timeline within authority levels or provide recommendation to AMI Exec Committee for final approval/endorsement. ► Program Steering Committee Meeting is the governing body (steering committee) of the AMI program.	► Program Sponsor / General Manager ICT (Chair) ► Program Manager ► Director Market Services ► Manager ICT Operations ► ICT Solutions and Delivery Manager	Fortnightly
Workstream Team Meeting	► The objective of the meeting is to discuss each team member's work plan for the week ahead.	► Work stream representatives ► AMI Program Director	Weekly

As noted in section 5.1 effective program governance and management arrangements provide significant assurance that expenditure will be incurred efficiently. AusNet Services considers that its Program Management process, which includes comprehensive governance and project management arrangements, provides such assurance.

Attachment 3 – Prudency Assessment of 2013 AMI Expenditure

Deloitte Access Economics

AusNet Services

Ex-post Review of AMI Expenditure in 2013

Final report

20 August 2014

Deloitte.

Contents

1 Executive Summary

Deloitte has been engaged to provide advice in respect of expenditure in excess of an AER approved budget which was incurred by AusNet Services under the Advanced Metering Infrastructure (AMI) Cost Recovery Order in Council (OIC) in 2013.

In the AMI OIC, clauses 5I.7 and 5I.7A provide for the recovery of excess expenditure, where the AER is satisfied that such expenditure is prudent and reflects the costs of an efficient business providing the regulated services. Clause 5I.7B stipulates that, in determining the prudency of excess expenditure, the AER may take into account whether or not a contracted cost was let in a competitive tender or any of the following matters which are set out in Clause 5I.8:

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

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

c) The nature of the rollout obligation;

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

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

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

g) Any metering regulatory obligation or requirement; and

h) Any other relevant matter.

This report sets out Deloitte's views on whether expenditure in excess of AusNet Services's AER approved budget incurred in 2013 is 'prudent' as defined by the AMI OIC.

The views set out in this report are based on the AER's Victorian AMI Review 2012-14 Budget and Charges Application Final Determination (October 2011), the Final Decision on AusNet Services AMI Remittal (February 2013) and information provided by AusNet Services in March and April 2014.

In conducting our review, it was clear that in a program of the scale, scope and complexity of the AMI rollout it is difficult to link cause and effect in relation to delays and cost increases, particularly when so much of the program is interlinked and when so many complex challenges have emerged. As a result, it is difficult to identify the precise source of cost increases across some categories of expenditure. Accordingly, our approach has been to understand the broad issues that emerged during the AMI rollout and consider the evidence for links between these issues and the excess expenditure in 2013.

In forming our views we have relied on information provided by AusNet Services. We have not conducted a review of primary documentation supporting the information provided.

Figure 1 outlines AusNet Services's approved budget for 2013 and total actual expenditure, highlighting the core drivers of expenditure in excess of the Approved Budget which we have identified in our analysis.

Figure 1: Approved budget, excess expenditure and cost drivers

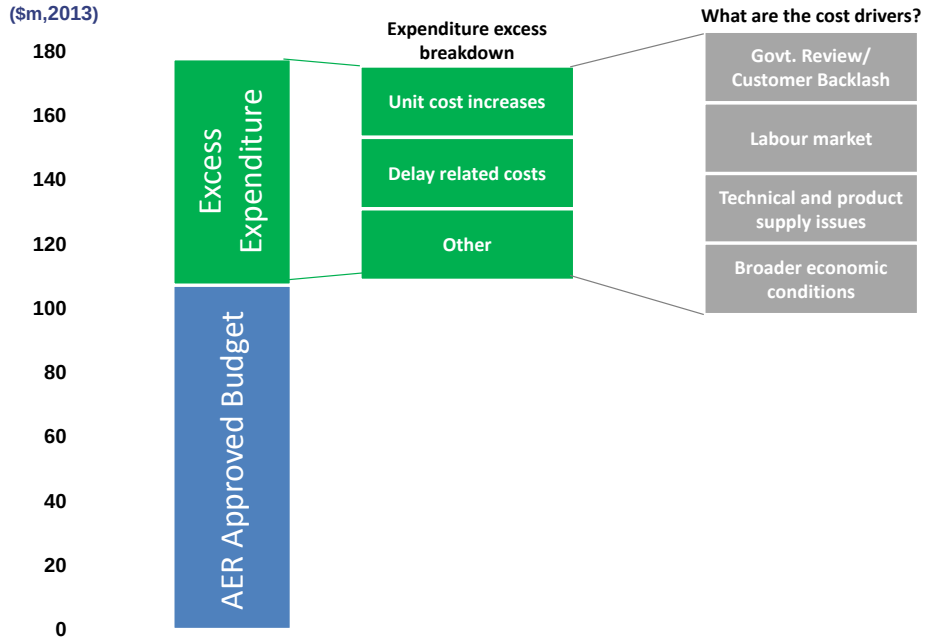


Table 1 summarises our views on the prudency of AusNet Services's excess expenditure in 2013. On balance, we consider that of the $70.5 million of excess expenditure incurred in 2013, $68.4 million meets the prudency criteria set out in Clause 5I.8 of the OIC.

Table 1: Summary of expenditure excess analysis (by category)

Expenditure item	Total Expenditure Excess in 2013	Deloitte's view
Meter supply	$22.4 million	The expenditure excess in this category relates to higher than anticipated meter purchases in 2013, which resulted from program delays in 2011 and 2012 and were largely outside of AusNet Services's control. The delays were primarily caused by the politicised nature of the AMI rollout, customer resistance and technical faults, all of which were inherent risks in the AMI program. In our view, the $22.4 million of excess meter supply expenditure in 2013 meets the prudency tests in clause 5I.8 of the OIC. In particular clauses 5I.8(c), 5I.8(d) and 5I.8(e).
Meter installation	$19.9 million	The expenditure excess in this category relates to higher than expected meter installations in 2013, resulting from delays in 2011 and 2012, as well as increased average meter installation costs. Average installation costs primarily increased due to tight labour market conditions which were exacerbated by the mandatory nature of the rollout obligation, increased wasted visit rates due to

Expenditure item	Total Expenditure Excess in 2013	Deloitte's view
		customer resistance to the AMI Program and higher than expected rate of meter board defects. In our view, the $19.9 million of excess meter supply expenditure in 2013 meets the prudency tests in clause 5I.8 of the OIC. In particular, clauses 5I.8(c), 5I.8(d), 5I.8(e), 5I.8(f) and 5I.8(g).
Communications infrastructure and installation	$17.3 million	The expenditure excess in this category relates primarily to higher than expected costs of site acquisition, site negotiations, design modifications and stakeholder management. These issues stemmed from customer backlash to the installation of towers in community areas as well as to the AMI program in general, which was exacerbated by the political environment. We also consider the initial budget for these towers was underestimated. In our view the $17.3 million communications expenditure excess in 2013 meets the prudency tests in clause 5I.8 of the OIC. In particular, clauses 5I.8(b), 5I.8(c), 5I.8(d) and 5I.8(e).
Meter data services (IT capex)	$1.7 million	The expenditure excess in this category relates to higher than anticipated IT capex due to under forecasting the expenditure requirements, as well as the costs of dealing with technical challenges with the IT systems themselves. While some of this excess expenditure is due to factors beyond AusNet Services's control, some of it appears to be due to project management of the IT capital program. It is difficult to estimate how much impact each of the factors has had on AusNet Services's AMI Program. However our judgement is that 50% of the expenditure excess in this category is likely to be prudent. Therefore, in our view, $0.8 million of the $1.7 million meter data services expenditure excess meets the prudency tests in clause 5I.8 of the OIC. In particular, clauses 5I.8(c), 5I.8(d), 5I.8(e) and 5I.8(g).
Meter reading	$4.0 million	The expenditure excess in this category relates to higher than expected meter reading requirements. These have been driven by many factors including a low rate of logical conversion in 2011 and 2012; delays caused by the Government review of the mandated AMI rollout, and the inability for AusNet Services to disconnect customers refusing an AMI meter under the Customer Issues Management Protocol. A proportion of the expenditure excess also appears to be due to project management of the IT capital program. These issues have all decreased productivity of meter reading routes. Again, it is difficult to establish the proportion of expenditure excess that were associated with each of these factors. However, our judgement is that the majority – approximately 75% - of the excess expenditure, or $2.9 million, is likely to meet the prudency tests in clause 5I.8 of the OIC. In particular, clauses 5I.8(c), 5I.8(d), 5I.8(e) and 5I.8(g).
AMI PMO	$3.6 million	The expenditure excess in this category relates to the need to hire a greater number of PMO staff than budgeted to deal with the issues surrounding the AMI program. Whilst the number of FTEs was higher than anticipated, the average wage paid for PMO staff was $47,275 lower than the commercial standard determined by the AER in 2011.

Expenditure item	Total Expenditure Excess in 2013	Deloitte's view
		However, given the role of the PMO in the AMI Program, we consider it likely that a proportion of the excess PMO costs are caused by IT project management issues . Accordingly, we have estimated that 2.8% of the expenditure in this category was likely to be imprudent, and that the remaining $3.5 million of the $3.6 million excess PMO expenditure in 2013 meets the prudency tests in clause 5I.8 of the OIC. In particular, clauses 5I.8(c), 5I.8(d), 5I.8(e) and 5I.8(f).
Customer service cost	$0.2 million	Expenditure excess in this category relates to the need to respond to community concerns surrounding the AMI program, much of which arose due to the politicised nature of the program. Customer service requirements increased substantially due to the introduction of the Protocol for Customer Issues Management for Smart Metering Technology Rollout. In our view the $0.2 million of excess customer service expenditure in 2013 meets the prudency tests in clause 5I.8 of the OIC. In particular, 5I.8(c) and 5I.8(g).
Overheads and indirect costs	$2.7 million	Expenditure excess in this category increased because managers and executives involved in the AMI Program spent more time managing the regulatory and technical issues that arose during the AMI rollout, as well as the higher than anticipated number of meter installations in 2013. Similar to AMI PMO costs, we consider it likely that a proportion of the excess overhead costs are likely to be associated with expenditure which may not pass the prudency test in the OIC. Accordingly, we have estimated that 2.8% of the expenditure in this category was likely to be imprudent, and that the remaining $2.6 million of the $2.7 million excess overheads expenditure in 2013 meets the prudency tests in clause 5I.8 of the OIC in Council. In particular, clauses 5I.8(c), 5I.8(d), 5I.8(e), 5I.8(f) and 5I.8(g).
Sundry operating expenditure	$0.9m	Regulatory and policy costs associated with the AMI Program have exceeded the original budget determined by the AER in 2011, due to the large number of policy and regulatory changes which have occurred since the overall review of the AMI Program was completed. In our view $0.9 million of excess expenditure in this category is reasonable and meets the prudency test in clause 5I.8 of the OIC in Council. In particular, clauses 5I.8(c), 5I.8(e), and 5I.8(g).

2 Background

In order to implement the Victorian Government's policy for distributors to roll out Advanced Metering Infrastructure (AMI) to all Victorian small electricity customers, in 2007 the regulatory arrangements for metering, including cost recovery of AMI, were specifically carved out of the National Electricity Rules (NER) and regulated under a Cost Recovery Order in Council (OIC), enacted under the *Victorian Electricity Industry Act 2000*.

In 2011 the AER determined AusNet Services's regulatory budget for the 2012-15 period, as required under clause 5C.6 of the OIC. In 2013, for a range of reasons, AusNet Services's expenditure exceeded the approved budget by $70.5 million.

The OIC establishes a separate cost recovery arrangement for the AMI Program, enabling costs for 'AMI metering services' as defined in the OIC to be recouped. Clause 5I of the OIC provides for recovery of expenditure provided that certain criteria set out in clause 5I.8 are met. Relevant clauses are:

- Clause 5I.7 which provides that the distributor must satisfy the AER that the expenditure excess is prudent
- Clause 5I.7A provides that the expenditure excess is prudent where it reasonably reflects efficient costs
- Clause 5I.7B provides that for the purposes of being satisfied regarding efficient costs, the Commission may take into account:
    - Where expenditure is a contract cost, whether the contract was let in accordance with a competitive tender process
    - The matters set out in clause 5I.8 (hereafter referred to as the Prudency Criteria).

2.1 The Prudency criteria

As per Clause 5I.7B, in determining the prudency of excess expenditure, the AER may take into account whether or not a contracted cost was let in a competitive tender or any of the following as set out in Clause 5I.8:

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

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

(c) The nature of the rollout obligation;

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

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

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

(g) Any metering regulatory obligation or requirement; and

(h) Any other relevant matter.

It is important to note that the AER has not made any determinations in relation to the application of clauses 5I.7 to 5I.8. These clauses are effectively new, and replace the previous 'commercial standard test' which was used to determine the prudency of expenditure in the AER's Final AMI Budget Determination 2012-15. One key difference between the original and amended OIC is that the onus of proof has changed. While the OIC previously required that the AER must establish that the excess expenditure does not meet the commercial standard test, the revised OIC requires that distributors must satisfy the AER that the excess expenditure is prudent. Where the AER is satisfied that the excess expenditure is prudent after taking into account the factors in Clause 5I.8 outlined above, it may include the excess expenditure in the building block costs underpinning revised charges.

2.2 AER Final AMI Budget Determination 2012-15 and Tribunal Orders

The AER released its Final Decision on the Victorian distributors' AMI Budgets for the 2012-15 period in October 2011.

In its Final Determination for AusNet Services, the AER concluded that in relation to certain expenditure, AusNet Services's proposed expenses reflected a substantial departure from the commercial standard. [1] AusNet Services appealed the AER's Final determination to the Australian Competition Tribunal (Tribunal). The Tribunal Order (April 2012) required the AER to allow an amount for foreign exchange contracts and project management labour costs, as well as to reconsider its determination of WiMAX communications expenditure.[2] On remittal, the AER determined that a reasonable business in AusNet Services's circumstances, having undertaken a full reconsideration of its communications solution in early 2011, would have switched from WiMAX to mesh radio.

The AER's Amended Determination (February 2013) made additional budget allowances of $15.8 million for foreign exchange contracts and $1.7 million for project management labour costs but made no allowance for WiMAX related costs. [3]

AusNet Services appealed the AER's Amended Determination to the Tribunal and at the same time sought judicial review by the Federal Court. On 1 August 2013, the Tribunal dismissed AusNet Services's appeal (now the subject of a further application for review by AusNet Services). The judicial review decision remains reserved.

2.3 Scope of our work

Deloitte has performed a review of expenditure incurred in excess of the AMI budget which was determined by the AER (in 2011), which fits into the following categories:

[1] AER Final Determination: Victorian AMI Budget and Charges Applications 2012-15 p.69-75

[2] AER, Final decision: AMI review SPI Electricity Pty Ltd 2012-15 budget and charges applications: Ammendments pursuant to the Australian Competition Tribunal's OrdersIbid, p.iv

[3] Ibid, p.viii

- Meter supply capital expenditure
- Meter installation capital expenditure
- Communications infrastructure and installation capital expenditure
- IT capital expenditure
- Meter reading operating expenditure
- AMI Program Management Office (PMO) operating expenditure
- Customer services operating expenditure
- Overheads and indirect costs
- Sundry operating expenditure

For each category, Deloitte has formed a view on whether the excess expenditure incurred in 2013 is 'prudent' as defined in the OIC. We have adopted a category-by-category approach as this was the approach used by the AER in its Final Determination. Our analysis and conclusions relate to excess expenditure AusNet Services incurred in 2013 only.

In forming our views we have relied on information provided by AusNet Services. Our overarching assumption is that all the information provided to us, by and/or on behalf of AusNet Services is true, correct, complete, current and not misleading. We have not conducted a review of all primary documentation supporting the information provided. At the same time, we note that cost information comes directly from AusNet Services's externally audited regulatory accounts (under cl. 5H.2 of the OIC) and that these accounts are prepared using processes and (where appropriate) cost allocation approaches that have been in place for some time.

We have prepared this report based on regulatory precedent, selected previous submissions and our experience. We believe these provide a good indication of whether certain costs fulfil the regulatory requirements for recovery of excess expenditure.

3 Our approach

3.1 Interpreting the OIC

In preparing this advice we have had regards to the nature of the OIC and in particular the requirements of clause 5I.8.

Three overarching points are worth making. Firstly, despite recent changes, the OIC still provides in section 4.1(a) that "there shall be a pass through of the costs of a distributor for Regulated Services". This approach was adopted in order to provide distributors with confidence that they can recover (prudent and efficient) costs in the context of a rollout program which was foreshadowed to be subject to significant technological, financial and political risks. This has indeed proven to be the case.

Secondly, and in relation to the specific provisions of clause 5I.8 we note that in the past the AER has been reluctant to provide specific information on the way it will interpret each of the sub-clauses. Instead it has simply advised that it will consider these provisions on a case by case basis in light of the application and the information at hand. Further, no excess expenditure applications have yet been determined to the AER under the new provisions in the OIC.

Nevertheless, we consider it helpful to provide some overarching comments on each of the sub-clauses in 5I.8 in order to provide background as to the reasons for our views expressed later in this paper.

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

This clause suggests that when considering the prudency of a decision it is important to consider the information that was available at the time the decision was made. Although decisions may subsequently appear wise or unwise in hindsight as outcomes are influenced by later information and events, it is not reasonable to expect distributors to have perfect foresight.

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

As noted above, the AMI rollout program is a significant undertaking for Victorian distributors and one which carries significant technological, financial and political risks. No program of such scope and complexity will ever proceed entirely smoothly. Changes to approach, the impact of external and internal factors, technology changes and other unexpected matters are inevitable. These will have implications for costs, and the AER needs to take this into account.
As identified in section 4.4 below, many major Australian investment projects have experienced significant cost overruns in recent years and thus the AMI rollout is not unique.

(c) The nature of the rollout obligation

The OIC requires distributors to use their 'best endeavours,' to the extent practicable to install remotely read interval meters to all customers by 31 December 2013.

Under normal commercial considerations, if a business makes a decision to invest in an asset but it subsequently becomes apparent that constructing the asset in the timeframes planned may be very costly, the business may:

- Elect not to construct the asset;
- Decide to construct a smaller or cheaper version of the asset; or
- Stage construction of the asset over a longer period.

However, because the timeframe and specifications for the rollout are imposed by the OIC, distributors do not have the ability to make these decisions. Thus they are committed to incurring expenditure that they may not otherwise have chosen. We believe this clause requires the AER to take this into account in its decision making.

This clause also suggests that where the rollout obligation changes then costs must change accordingly. This should also be the case for implicit changes – for example the need to undertake a higher level of customer consultation, or the need to repair more meter boards, than originally envisaged.

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

As the distributors have (in our view, correctly) identified[4], the AMI roll-out is an *innovative project involving the development, installation, and operation of cutting-edge metering and communications technology on a large scale, in a short amount of time*. *ICT projects of this size are inherently difficult and complex to implement – particularly for relatively new and immature technology.*

Any new technology project of the scale and scope of the AMI Program faces the risk of unforseen problems with equipment failing to work as envisaged or needing more time to be spent on particular aspects. The AMI Program is not unique in this sense.

We note that while the Victorian Government set the minimum performance standards and service levels for the technology employed as part of the AMI Program, it did not specify the particular technologies that were to be employed. From an economic principles view point, to specify the technology could have resulted in a less efficient rollout as distributors would have been bound to particular service providers, in a limited market, rather than being free to make choices and flexibly respond to market conditions. In our view, the state of the technology is an important factor to consider when reviewing cost overruns in the AMI Program, given the inherently uncertain nature of the technology employed by all the Victorian distributors. The cutting-edge nature of the systems being installed and integrated has, unsurprisingly in our view, led to circumstances and costs which were not foreseeable at the time in which AMI budgets were determined.

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

[4] As noted by the AER on page 11 of its October 2011 Final Determination,

This clause suggests the AER should take into account the uncertainty involved with rolling out the AMI program by allowing for *reasonable* adjustments to the AMI budget where unforeseen circumstances occur. As we have described above, large scale technology-based projects such as the AMI Program are particularly prone to uncertainty and costs are difficult to forecast, increasing the risk of overruns.

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

In the context of AusNet Services's excess expenditure in 2013, we interpret this clause to suggest that the AER should take into account the market conditions faced by AusNet Services throughout 2013. If costs are pushed up by external market factors such as exchange rates, the availability of contractors, wages and other pressures in the economy, then this needs to be taken into account by the AER. It is also reasonable to expect AusNet Services to respond to market conditions, including changes in relative costs.

(g) Any metering regulatory obligation or requirement

Similar to sub-clause (c) this clause suggests that the AER should take into account the compulsory nature of all AMI program requirements. One implication is that if AusNet Services needs to (efficiently) undertake expenditure to meet the rollout timeframes, then it is obliged to do so, even if this expenditure exceeds the levels approved in the AER's 2012-15 initial budget and charges determination. The AER may also take into account broader regulatory requirements which operate outside of the OIC, such as Meter Data Provider (MDP) obligations and metrology procedures published by the Australian Energy Market Operator.

3.2 Category based expenditure analysis

As discussed in the previous section, we have approached this review of AusNet Services's excess AMI expenditure on a category by category basis. Table 2 and Figure 2 below set out the excess expenditure in each of the AMI budget categories.[5]

Table 2: Approved versus actual AMI expenditure in 2013

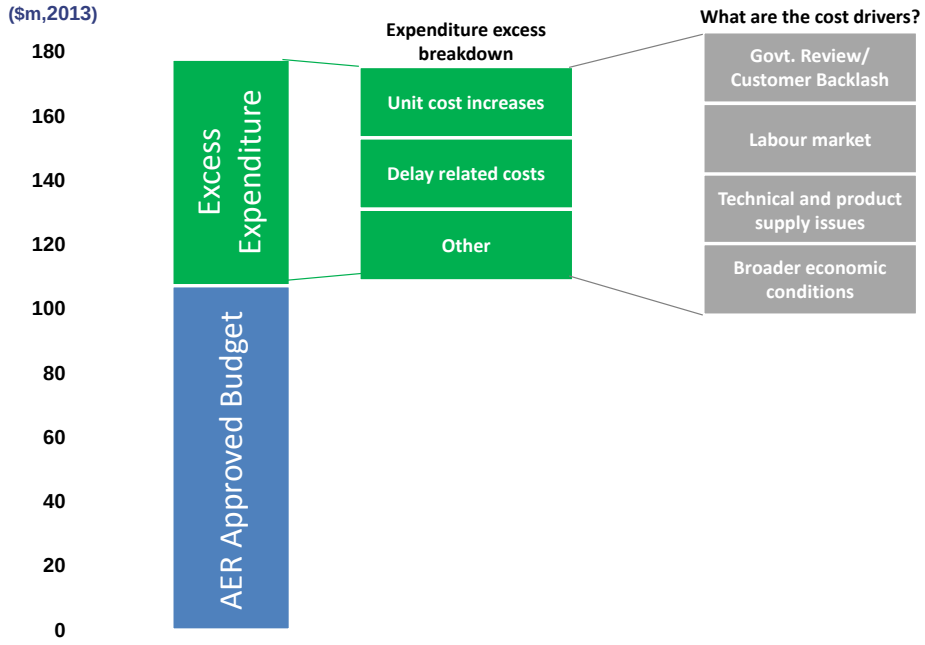
	Category	Amended AER Budget	Actual Expenditure	Excess Expenditure
Capital expenditure	Meter supply	37.7	60.1	22.4
	Meter installation	16.6	36.5	19.9
	Communication infrastructure and installation	14.2	31.5	17.3
	IT capex	7.3	9.0	1.7
Operating expenditure	Meter reading	2.4	6.8	4.4
	Meter maintenance*	0.6	0.5	-0.1
	Data management*	4.1	3.8	-0.3
	Customer services cost	0.5	0.7	0.2
	Communication infrastructure maintenance**	5.0	7.3	2.3

[5] Note that AMI opex (non-IT) incorporates meter purchases, audit and quality assurance, AMI budget and charges applications, equity raising costs and extra accommodation costs.

Category	Amended AER Budget	Actual Expenditure	Excess Expenditure
Project management	8.1	11.7	3.6
Management fees or overhead	2.0	4.7	2.7
AMI opex (non-IT)	0.3	1.2	0.9
IT opex*	8.4	6.4	-2.0
Net movement provisions*		-2.7	-2.7
Total	**107.2**	**177.7**	**70.5**

Note *: We did not review the categories of expenditure for which AusNet Services's actual costs were lower than the budget for that category.**: AusNet Services is not seeking assessment of communications opex as this is currently subject to Federal Court Review.

Figure 2: Approved budget, expenditure excess and cost drivers



4 Key drivers of excess AMI expenditure in 2013

The AMI Program has required an infrastructure and technology rollout that is unprecedented in the Victorian and indeed the Australian electricity industry. Installing over 2.5 million electricity meters to all Victorian households and small businesses has presented significant challenges from the technical, political and economic arenas.

While the OIC originally incorporated a schedule for the rollout over 2009 to 2013 which formed the basis for the cost recovery arrangements for the AMI Program over 2012-15, for a range of reasons discussed in this chapter, meters were not installed according to the original timetable (which was deleted from the OIC as part of the revisions). The AER's Final Determination on the Victorian distributors' AMI Budgets for the 2012-15 period was made in October 2011. The Final Determination was made on the basis of a forecast of meter installations which did not eventuate. The divergence between the 2011 forecast and the actual meters installed in each year has impacted the cost of the AMI rollout for AusNet Services.

The following table compares actual meters installed with the assumed installation rate underpinning the AER's Final Determination:

Table 3: Assumed versus actual meter installations (000's)

	Jun-10	Dec-10	Jun-11	Dec-11	Jun-12	Dec-12	Jun-13	Dec-13
Actual installations over the preceding 6 months	35.1	36.9	80.5	24.5	84.7	98.6	111.1	112.5
Budgeted installations over the preceding 6 months	35.9	35.9	81.9	81.9	151.1	151.1	71.3	71.3
Difference	**-0.8**	**1.0**	**-1.4**	**-57.5**	**-66.4**	**-52.5**	**39.8**	**41.2**
Cumulative installations (excl. new installations)	35.1	72.1	152.6	177.0	261.7	360.3	471.4	583.9
Cumulative budgeted installations (averaged)	35.9	71.9	153.8	235.8	386.8	537.9	609.2	680.5
Difference	**-0.8**	**0.2**	**-1.2**	**-58.7**	**-125.1**	**-177.6**	**-137.8**	**-96.6**

Table 3 demonstrates that while the Final Determination assumed that 2012 would be by far the largest rollout year, in fact most of AusNet Services's meters were installed in 2013.

The following sections discuss the key external factors that contributed to the delay in AusNet Services's meter installations.

4.1 Customer resistance and policy uncertainty

During 2011, the AMI program encountered considerable resistance from Victorian electricity customers, as well as negative media coverage. This had a number of implications, including a very high level of customers refusing to accept new AMI meters, and therefore a delay in meter installations which has affected the rollout since 2011.

The Energy and Water Ombudsman of Victoria (EWOV) has recently published the rate of smart meter complaints it received over the three years to January 2014.[6] As shown in Figure 3, the quarterly peaks in the number of EWOV complaints aligns with the dips in installation rates for AusNet Services's rollout, as well as corresponding to the periods after particular announcements were made by the Victorian Government.

Figure 3: Divergence of actual installations from AER budgeted installations in 2011 and 2012 and peak periods of EWOV complaints

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While it was assumed there would be some challenges in dealing with customers for the rollout, and indeed the level of customer complaints was increasing in 2011 leading AusNet Services to incorporate some additional budget for dealing with customers, the degree of uncertainty in the overall Government policy was not anticipated at the time that AusNet Services prepared its Budget Application for the 2012-15 period, in February 2011.

Increased customer refusals and wasted visits led to extensive program delays and substantial increases in average installation costs. Communications infrastructure deployment was also impeded by community opposition, which included site obstructions, protests and the prevention of construction by councils. For example, AusNet Services has advised that the average cost of towers increased due to the need for community negotiations, design changes and site reselection following customer complaints.

In part as a response to community concerns, the incoming Victorian Government undertook a wide-ranging review of the AMI program in 2011, including the following:

- Flexible Pricing Customer Impact Study – Stage 2 (Deloitte - July 2012)
- Flexible Pricing of Electricity for Residential and Small Business Customers Report (Etrog Consulting - February 2012)
- AMI Customer Impact Study – Stage 1 (Deloitte - October 2011)

[6] EWOV Website: http://www.ewov.com.au/reports/solar-and-smart-meter-update-january-2014/three-year-overview

- AMI Meter Electromagnetic Field Survey (EMC Technologies – October 2011)
- Privacy Impact Assessment Report (Lockstep Consulting – August 2011)
- AMI Cost Benefit Analysis (Deloitte – August 2011)

These reviews eventually concluded that the AMI program was safe, appropriately protected customer privacy, and was flexible enough to allow for alternate pricing structures for customers vulnerable to time-of-use pricing. Given the continuation of the program from 2012 was expected to result in net benefits of $713 million ($2011, NPV at 2012)[7], the government made the decision to proceed with the rollout, subject to some alterations to address community concerns.

Despite government assurances customer resistance remained relatively high throughout 2011 and 2012. In order to ensure the safe and efficient rollout and the Government, it was necessary for AusNet Services to increase customer consultation and education efforts, incurring expenditure in doing so.

To compensate for program delays in 2011 and 2012, the volume of meter installations performed and towers constructed in 2013 was substantially higher than expected.

A further consequence of the delays outlined above was to reduce forecast operating cost savings. Project delays resulted in fewer meter reads becoming automated and the sporadic nature of refusals increased the average distance between manual meters on meter reading routes. Therefore, in 2013, the required number of manual meter reads was significantly higher than projected in 2011.

4.2 Technical issues

In addition to policy instability and customer backlash discussed in Section 4.1, the Victorian AMI rollout has faced considerable technical challenges. These technical challenges are associated both with the communications infrastructure and back office IT systems supporting AMI. AusNet Services has informed us that IT capital expenditure overruns incurred in 2013 can largely be attributed to problems with AusNet Services's back office IT systems.

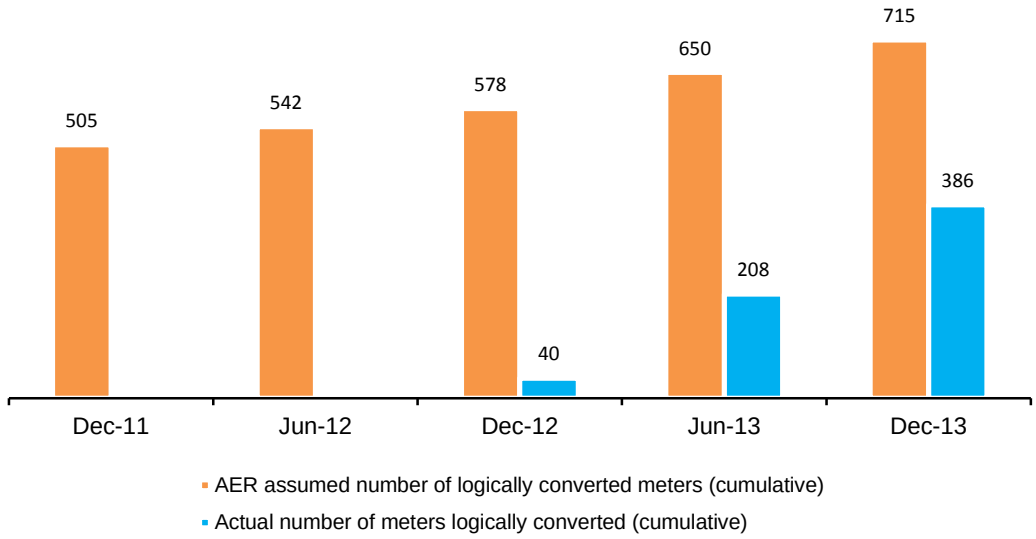
The issues faced by AusNet Services which contributed to the 2013 overspend include:

- Logical conversions – Meters are logically converted when they are registered as remotely read interval meters in the market system by AEMO. In 2011, AusNet Services faced systems integration issues which prevented data from flowing through the back office systems to market. As a result, the volume of logical conversions achieved in 2011 was significantly less than planned. While the problem was resolved in late 2012, meter reading routes which were expected to be retired continued into 2013, increasing operating costs. Figure 4 presents a comparison of the expected cumulative logical conversions and the actual logical conversions, to December 2013.
- Overheating fault - In June 2011, a fault causing overheating damage was detected in meters supplied to AusNet Services, presenting a potential fire-risk. This resulted in AusNet Services's meter supplier (Landis & Gyr) conducting a full investigation of the fault. AusNet Services has advised us that while the costs of rectifying the fault

[7] Deloitte, Department of Treasury and Finance – Cost Benefit Analysis of the AMI Program, August 2011, p. 8.

fell on the supplier, this led to meter procurement delays for AusNet Services, which contributed to the delays and affected installation contracts.

Figure 4: Assumed versus actual logical conversions (cumulative, 000's)



4.3 Labour market cost increases

During 2012 and 2013 the market for meter installers in Victoria became increasingly tight, with only seven credible meter installation companies servicing the AMI rollout.[8] The large scale of the AMI program and the need to complete the rollout in line with the timelines in the OIC created intense competition for installers between AusNet Services and the other Victorian electricity distributers, placing upward pressure on installer costs, particularly in 2013.

Labour shortages were exacerbated by the labour requirements of other major infrastructure projects in Victoria and nationally, including the National Broadband Network rollout, many of which required skills comparable to those held by meter installers.

Installation companies sought to increase their resources by recruiting additional installers, however given the limitations in the market this resulted in increased labour costs. While typically it would be expected that new competitive suppliers would emerge in response to the constraints and high labour costs, this did not occur quickly. Market forces did not drive down installer wages due to barriers to entry created by minimum training requirements and limited capacity at AMI accredited training facilities.

The training requirements for AMI meter installers were determined by the Victorian Government in an Order in Council in 2009, following discussions among the distributors

[8] ServiceStream, Electrix, Skilltech (formally UXC), Zinfra, BLS (formally Edison Morgan), Select Solutions and Lend Lease.

and industry stakeholders preparing for the AMI rollout.[9] While this regulation was designed to increase the availability of meter installers for the rollout by enabling line workers, technicians and electricians (who may not be licenced to carry out the installation work ordinarily) to perform installations, it also required training and accreditation.

AusNet Services has indicated that with only one training facility offering the mandated training course (Central Gippsland Institute of TAFE (GippsTAFE)) there were constraints in the availability and schedule of training.[10] This prevented the supply of meter installers meeting the increased demand throughout 2013, when the volume of meter installations exceeded expectations due to delays in earlier years. This put more pressure on the wages for qualified installers, and resulted in increased costs being incurred by AusNet Services.

AusNet Services sought to limit installation cost increases by developing internal meter installation capacity. As a result, in August 2013 it was in a position to cease its arrangements with one of its two meter providers and move to the use of internal resources through Select Solutions. This provided AusNet Services with greater flexibility in contracting installers and reduced the increasing cost pressures.

In 2013, AusNet Services also introduced an incentive bonus to increase the rate of installations and overall lower the average time and cost per installation. Further discussion on the impact of this incentive is provided in section 5.1.2.

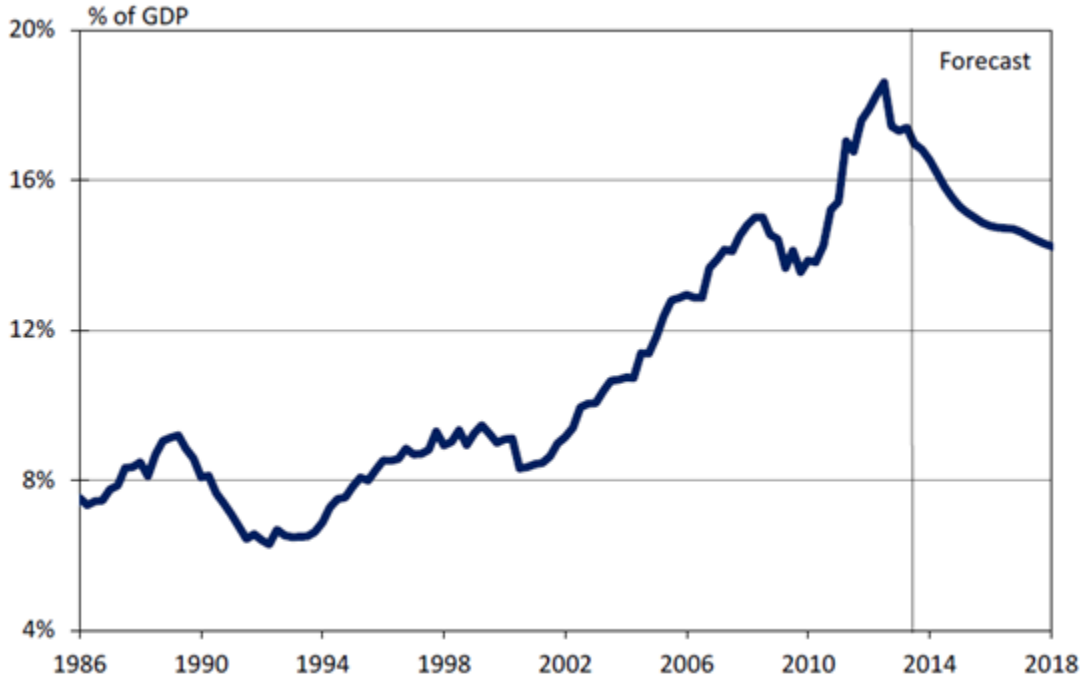
4.4 Broader economic conditions

Over the past few years Australia has been experiencing a spike in investment and major projects, particularly in the mining sector. Major infrastructure projects have competed for scarce labour and capital. This is evident in the following graph which shows business investment as a proportion of total Gross Domestic Product (GDP). Mining construction projects and major infrastructure capital investment tend to attract similar labour resources as that required for the AMI Program, which is also a temporary infrastructure project requiring a build-up of contract labour to meet a construction timetable. While this peak has now passed, it was at its highest in 2012 and 2013.

[9] Victorian Government Gazette, 13 August 2009 ' Electricity Safety Act 1998 – Amendment of Order in Council.

[10] Training Proposal for 'Standard AMI Electrical Meter Installation' course provided by the Central Gippsland Institute of TAFE, January 2013.

Figure 5: Underlying business investment as a share of GDP



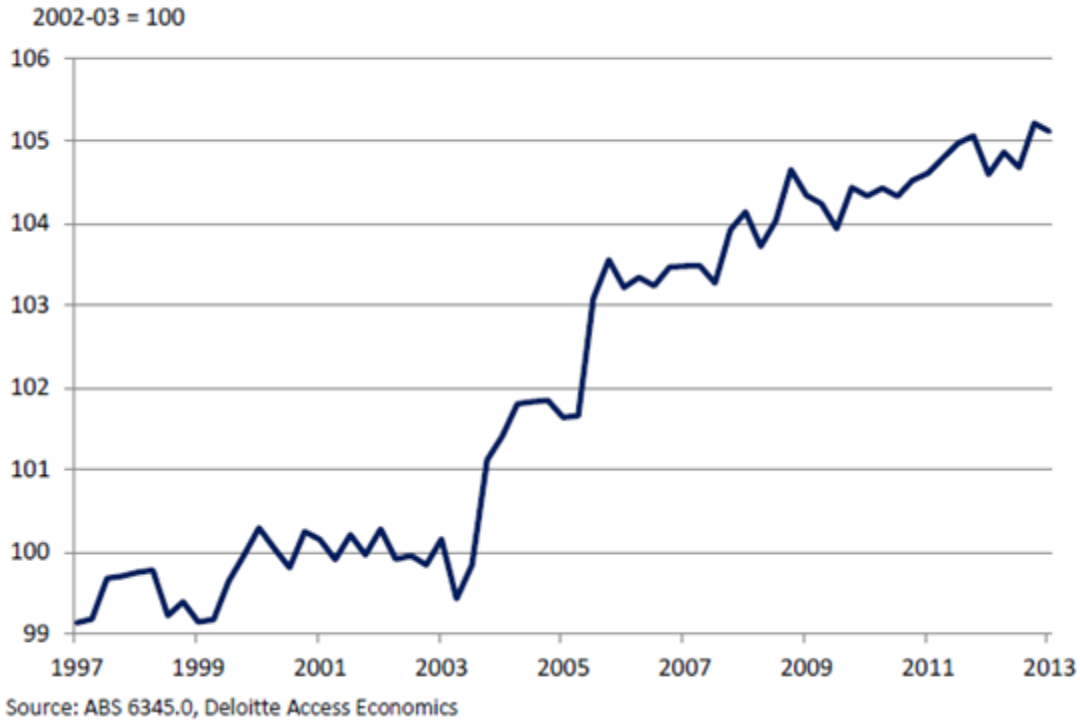
Source: Deloitte Access Economics, Business Outlook, December 2013

AusNet Services's AMI cost over-runs are not atypical of those experienced by major infrastructure projects in Australia. In a recent report[11], Deloitte found that on average, Australian infrastructure projects have seen cost over-runs in seven of the past eight years, and that for larger infrastructure projects cost over-runs have averaged 12.7%.

Labour costs were found to be a key driver as construction sector wages have consistently grown faster than other sectors over the past decade (see below) and are slow to reduce when market conditions improve.

[11] Deloitte Access Economics 2014, 'Major infrastructure projects: costs and productivity issues'.

Figure 6: Construction wages relative to all wages



These labour supply conditions and wages have evolved throughout the AMI rollout and have led to increased AMI installation and communications network infrastructure construction costs for AusNet Services.

4.5 Regulatory changes

In addition to the overall review of the AMI Program in 2011, a number of more specific regulatory changes occurred in 2012 and 2013 which increased the costs of the rollout for AusNet Services.

In response to the increased rate of customers refusing to have an AMI meter installed, in November 2012 the Victorian distributors together with the Department of Primary Industries developed a Customer Issues Management Protocol to establish principles for dealing with customer complaints and to ensure a consistent approach to completing the rollout. The Customer Issues Management Protocol incorporated three streams of issues management. These steps include:

- The pre-installation provision of information about the program and two letters detailing the installation process, and the installation date, forty days and ten days prior to installation;
- In the event of a customer refusal, assign a customer service specialist to engage with the customer, provide more detailed explanations and references to information sources, allowing two weeks for the customer to digest the information, followed by a follow up consultation; and
- In the event of a continuing refusal, assign a case manager to assess the customers concerns and utilise the following options:
    - Option 1: offer to speak to a technician or internal specialist

- Option 2: offer face-to-face engagement where possible
- Option 3: Consult with industry peers or representatives
- Option 4: Onsite technician visit and exploration of technical alterations.

This process resulted in increases in customer service and customer management related costs and overheads.

Since it was put in place, there have been six amendments made to the OIC reflecting various policy changes that were implemented after the review of the Program in 2011. The most significant changes occurred in 2012 and 2013, many of which required considerable regulatory analysis, including the treatment of excess expenditure above the approved budgets. Changes to the OIC have contributed to the increase in regulatory team costs for the Victorian distributors and were unforeseen at the time that the Regulatory budget was determined in 2011.

4.6 Conclusion

Throughout our review of AusNet Services's 2013 excess AMI expenditure, we have identified a wide range of factors which impacted the costs incurred in meeting the regulatory obligations underpinning the AMI Program. This chapter has outlined the factors that were largely external to AusNet Services's decision making and control of the program, particularly customer resistance, labour market and economic conditions, as well as regulatory changes.

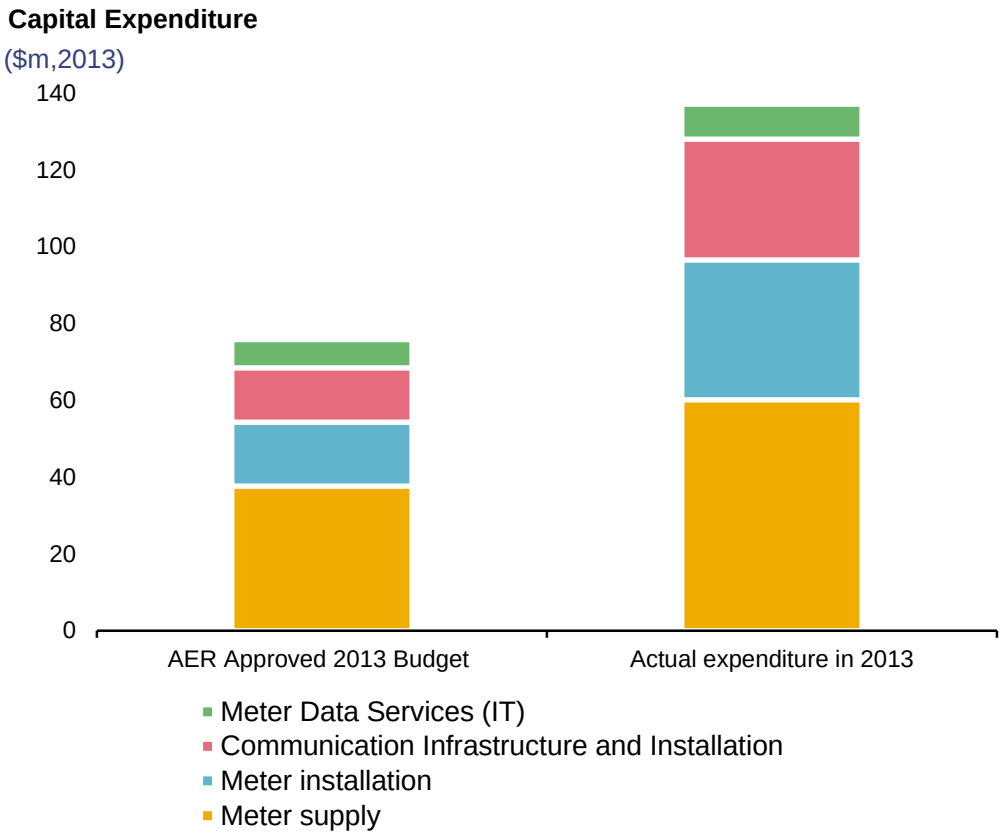
While external factors are responsible for the majority of the excess expenditure incurred in 2013, there are also likely to be other factors which AusNet Services did have some control over. These include the overall management and governance of the AMI Program, the way that particular unforeseen challenges were dealt with by AusNet Services and the forecasts underpinning the original budget which were made in early 2011.

In a program of the scale, scope and complexity of the AMI rollout, it is difficult to link cause and effect in relation to delays and cost increases, particularly when so much of the program is interlinked and when so many complex challenges have emerged, as outlined in this chapter. As a result, it is difficult to identify the precise source of cost increases across some categories of expenditure. Accordingly, our approach has been to understand the broad issues that emerged during the AMI rollout and consider the evidence for links between these issues and the excess expenditure in 2013.

5 Expenditure category analysis

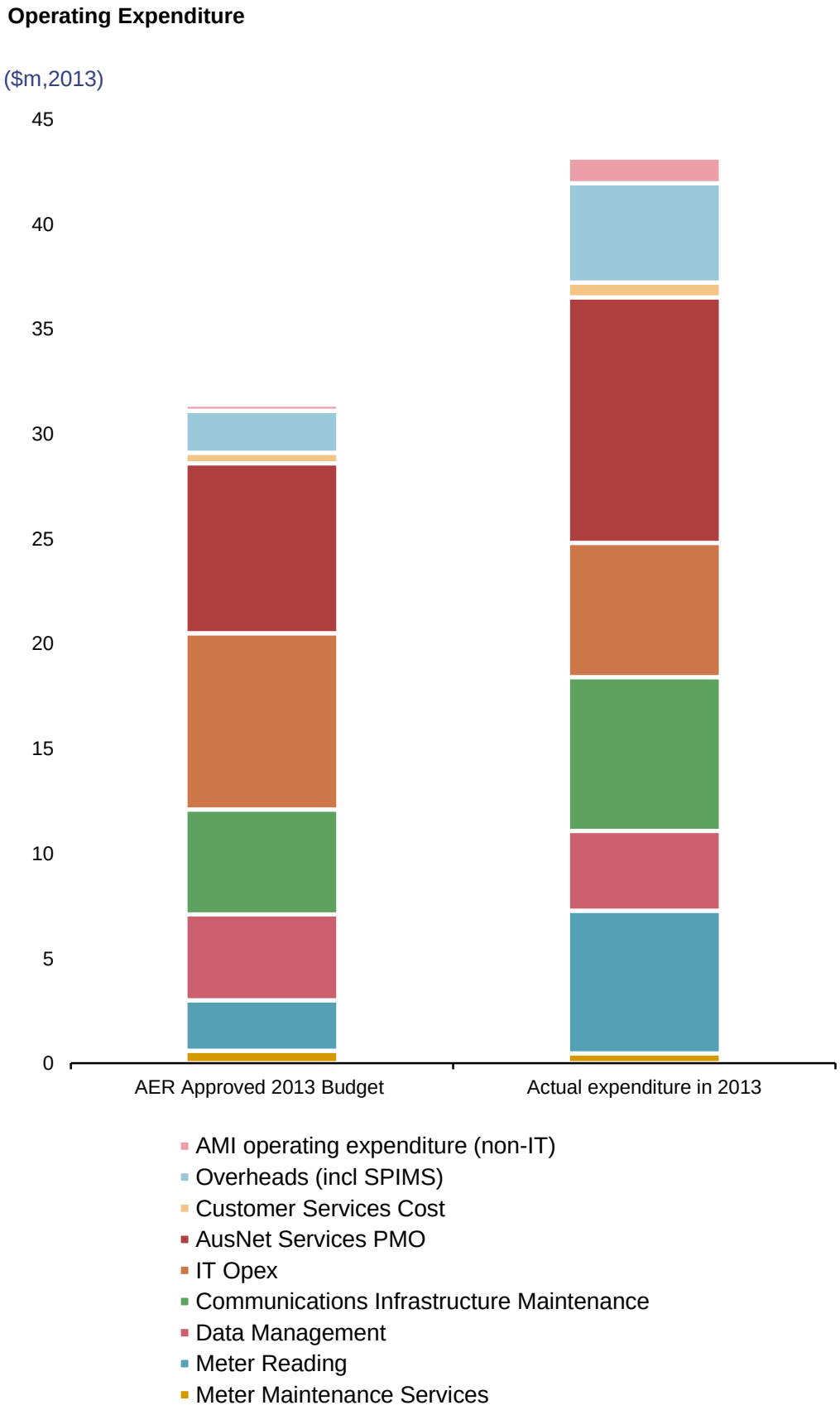
AusNet Services's 2013 AMI expenditure exceeded the AER's approved budget by approximately $70.5 million in 2013. The majority of this excess relates to capital expenditure.

Figure 7: Comparison of 2013 capital expenditure against the AER budget ($m)



Operating expenditure also exceeded the AER's approved budget in 2013.

Figure 8: Comparison of 2013 operating expenditure against the AER determined budget ($m)



The following sections set out our views on the prudency of selected expenditure categories in line with the requirements of the OIC.

Many of the cost increases in 2013 are due to the slower than anticipated rollout of meters which has been experienced to various degrees by all distributors. Delays have meant, for example, that the number of manual meter reads has been higher than forecast and that overheads and project management office costs have remained higher in 2013 than would otherwise have been the case.

As stated in Section 4, delays are a consequence of a number of factors including the government's review of the AMI program, customer opposition to the program, tightness in the market for installers, and technology issues. Our view is that as most of these factors are largely out of AusNet Services's control, it is reasonable to consider changes in costs in 2013 compared to budget that have arisen primarily due to timing issues as being prudent.

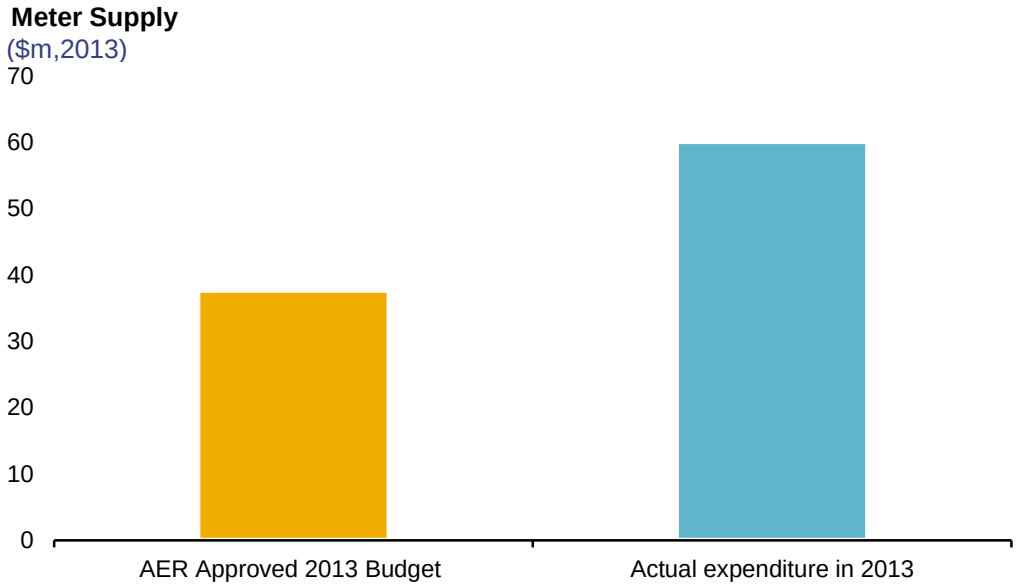
5.1 Capital Expenditure

5.1.1 Meter supply capital expenditure

Meter supply capital expenditure relates to the procurement of meter hardware, communications (comms) cards and antennas.

As shown by Figure 9 below, meter supply capital expenditure in 2013 exceeded the AER budget of $37.7 million by $22.4 million.

Figure 9: Comparison of 2013 meter supply expenditure against the AER determined budget ($m)



5.1.1.1 Discussion

The key reason for the 2013 overspend was:

- Delayed capital expenditure: meter supply volumes were higher than anticipated in the AER budget, comprising an additional 216,031 complete metering units and an additional 44,946 stand-alone meters.

In formulating our view on the prudency of excess expenditure in this category, Deloitte has reviewed the following:

- AER budgeted meter volumes[12]
- AER determined total meter supply budget (including comms card costs)[13]
- AER amendments to AusNet Services's foreign exchange allowance[14]
- AusNet Services's allocation of the additional foreign exchange allowance provided by the AER amendment[15]
- Actual meter supply volumes and expenditure[16]
- AER data detailing the Mesh comms card and antenna unit costs used to determine the meter supply budget for 2012-15[17]

[12] AER 2011, Final Determination: Victorian AMI 2012-15 budget and charges, table 2.6, p.56
[13] Ibid, p.122
[14] AER 2013, Final Decision AMI review SPI Electricity Pty Ltd 2012-15 budget and charges applications: amendments pursuant to the Australian Competition Tribunal's Orders, p.122
[15] Provided by AusNet Services
[16] Provided by AusNet Services

- Details of signed contracts (dates, prices, length) with the following suppliers:
  - Landis & Gyr (Meters and WiMAX comms cards)
  - Ericsson (3G comms cards)
  - Panorama (Antennas).

Delayed capital expenditure

The key reasons for the delay in capex were customer resistance driven by policy uncertainty (see Section 4.1), as well as technical and product supply issues (see Section 4.2).

In its Final Determination, the AER decided that an aggregated meter unit cost (incorporating meters and communications modules) was an appropriate approach to setting the approved budget.[18] For 2013, the aggregated meter unit cost determined by the AER was $214.58. However, in the AER's revised budget, additional foreign exchange allowances increased the aggregated meter unit cost to $245.05.

The AER meter supply budget for 2013 assumed 153,795 complete meter units would be purchased. However, due to program delays, the actual number of complete meters purchased in 2013 was 216,031. In addition, AusNet Services also purchased 44,946 stand-alone meters in 2013.

As shown in Table 4, using the AER approved unit costs, $20.3 million of the $22.4 million expenditure excess was incurred due to a larger quantity of complete meter unit purchases ($15.3 million) and stand-alone meter units ($5.1 million) than expected in 2013.

The remaining $2.1 million in expenditure excess relates to variations in the unit costs of meter units and comms cards from the AER budget. We note that this excess would have been significantly higher had AusNet Services not achieved per unit cost reductions in meter units, which substantially reduced the per unit meter procurement below the AER budget.

Table 4: Breakdown of AusNet Services Excess meter supply expenditure in 2013 ($m)

Nominal $M	$m,2013
AER Final Determination Budget	37.7
Excess incurred due to additional complete meter units (at AER approved unit cost)	15.3
Excess incurred due to higher than budgeted complete meter unit costs	2.1
Excess incurred due to additional stand-alone meter units	5.1
Total meter supply expenditure	**60.1**

5.1.1.2 Conclusions

Almost all of the excess expenditure in this category relates to higher than anticipated meter volume purchases in 2013. We note that the additional expenditure associated with cost increases (rather than volumes) makes up less than 0.5% of the total expenditure in this category. Given the number of meters installed in 2013, and the drivers of cost increases discussed in Chapter 4, we consider this rate of expenditure excess is reasonable.

Excess expenditure was driven by:

- Nature of the rollout obligation (5I.8(c)): the nature of the policy uncertainty surrounding the AMI Program and the customer backlash caused meter rollout

[17] Provided by AusNet Services
[18] AER 2011, Final Determination: Victorian AMI 2012-15 budget and charges, p.85

delays. The mandatory rollout schedule necessitated a higher number of meter purchases in 2013 than anticipated in the AER Budget.

- State of the technology (5I.8(d)): the overheating fault in 2011 contributed to delays in meter supply, contributing to higher than expected meter purchases in 2013.
- Inherent risks in the AMI project (5I.8(e)): Technical faults and extensive project delays are an inherent risk when procuring hardware for technologically based projects on the scale of the AMI Program.

Given the procurement issues faced by AusNet Services, and the requirements of the OIC, the actions it took in 2013 appear reasonable. Therefore, in our view the $24.2 million of excess meter supply expenditure in 2013 meets the prudency tests in clause 5I.8 of the OIC.

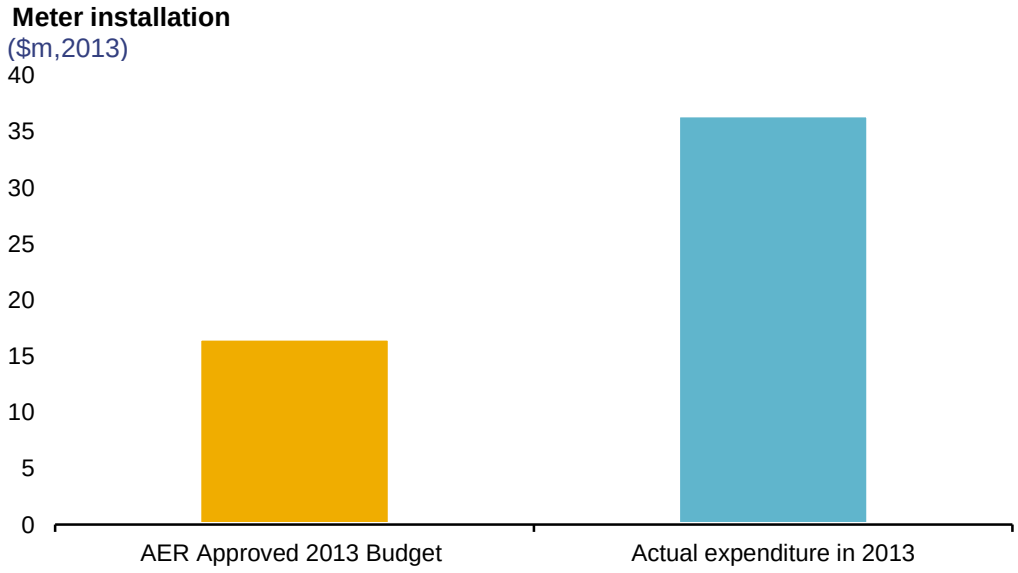
5.1.2 Meter installation capital expenditure

Meter installation capital expenditure relates to costs associated with:

- Normal installation
- Wasted visits
- Antenna installation
- Meter board repair and replacement

As shown by the figure below, meter installation capital expenditure in 2013 of $36.5 million exceeded the AER budget of $16.6 million by $19.9 million.

Figure 10: Comparison 2013 meter supply expenditure against the AER determined budget ($m)



5.1.2.1 Discussion

The key reasons for this overspend were:

- Delayed capital expenditure: there were 81,044 more meter installations than anticipated in the AER budget, following substantially fewer than budgeted installations in 2011 and 2012.
- Increased installation costs: installation costs were significantly higher than the AER anticipated – $10.61 million of the excess expenditure in 2013.

In formulating our view on the prudency of excess expenditure in this category, Deloitte has reviewed the following:

- AER budgeted installation volumes[19]
- AER determined total meter installation budget[20]
- Average monthly installation costs for installations conducted by Skilltech, Eletrix and Select Solutions[21]
- The cost modelling assumptions underlying AusNet Services's submitted meter installation budget, accepted by the AER[22]
- Details of an installer incentive scheme to ensure timely project delivery[23]
- A written request from an installation subcontractor insisting that without a rate rise they would have to terminate their contract due to low profitability.[24]

Delayed capital expenditure:

The reasons for installation delays were:

- Customer resistance to the AMI Program and the consequent uncertainty surrounding Victorian Government AMI policy (see Section 4.1)
- Meter procurement issues stemming from an unforeseen technical fault in 2011, whereby meters experienced overheating damage, posing a potential fire risk (see Section 4.2).

Figure 11 below shows that in 2011 and 2012 there was a substantial divergence in the actual number of installations performed compared to the number of installations envisaged in the AER budget. Although AusNet Services managed to close most of this gap in 2013, the rollout never fully recovered from the 2011 and 2012 delays.

[19] AER 2011, Final Determination: Victorian AMI 2012-15 budget and charges, p.22
[20] Ibid, p.122
[21] Provided by AusNet Services
[22] Provided by AusNet Services
[23] Provided by AusNet Services
[24] Skilltech, Letter to AusNet Services, 31 December 2012.

Figure 11: Divergence of actual installations from AER budgeted installations in 2011 and 2012

C-I-C

As shown in Table 5, using the AER's approved per meter installation rate ($116), $9.3 million of the excess meter installation expenditure in 2013 can be attributed to a larger number of meters installed than expected. In our view, this expenditure was prudently incurred – given the nature of the rollout obligations.

Table 5: Breakdown of AusNet Services Excess meter installation expenditure in 2013 ($m)

Nominal $M	2013
AER Final Determination Budget	16.6
Excess incurred due to additional volume (based on AER approved unit cost)	9.3
Excess incurred due to higher than budgeted per installation costs	10.6
Total meter installation expenditure in 2013	**36.5**

Increased installation costs:

The remaining $10.6 million of excess meter installation expenditure results from higher than budgeted per installation costs. As outlined in Section 4, higher installation costs resulted from:

- Tight labour market conditions resulting in upward pressure on installer wage rates (see Section 4.3)
- Customer resistance to the AMI program (see Section 4.1) resulting in:
    - Extensive delays
    - Higher than expected refusal and wasted visit rates, substantially reducing installation productivity
    - The adoption of the industry-wide Customer Issues Management Protocol for recalcitrant sites.

- Higher than forecast numbers of meter boards requiring repair or replacement

Higher than forecast meter board expenditure

When forecasting meter installation expenditure in its AMI Budget submission, AusNet Services significantly underestimated the number of meter boards to be repaired/replaced during the AMI rollout.

Victorian electricity distributors are under a regulatory obligation to repair or replace meter boards, where they pose a threat to customers, however the precise implications of this requirement were not fully understood at the time the budget was forecast. In October 2012, Energy Safe Victoria clarified the installation requirements for electricity meter boards, specifically in relation to holes in meter boards which pose a risk of electrocution.[25] Energy Safe Victoria advised AusNet Services in writing of its views on the safety requirements for covering holes in meter boards clarifying the requirement for holes in meter boards greater than 12mm in size to be covered over by the installer.

As a result of this obligation, when faced with a higher than anticipated number of meter boards requiring repair or replacement, AusNet Services's only option was to spend more on meter board related installation costs than reflected in the AER budget.

Tight labour market conditions

As outlined in section 4.2, during 2013 AusNet Services faced higher installation costs as a result of tight labour market conditions.

Responding to a formal request for rate increases by installer subcontractors, AusNet Services made a decision to terminate its contract with Skilltech and establish Select Solutions as an internal meter installation capability in order to reduce costs. As shown in Figure 11 below, Select Solutions consistently performed installations under the AER's unit cost budget and at significantly lower rates than AusNet Services's installation subcontractors.

We note that Electrix's per installation costs remained above the AER budgeted per installation cost for the remainder of 2013. However, AusNet Services was not in a position to terminate its contract with Electrix given the limitations on the number of installations Select Solutions could perform. Figure 11 shows that AusNet Services continued to increase the proportion of installations performed by Select Solutions throughout the remainder of the rollout period, thereby demonstrating best endeavours to limit excess expenditure.

[25] Energy Safe Victoria, Letter to AusNet Services, 9 October 2012; Select Solutions, Technical Advice #42 – Covering Holes in Meter Boards, 19 August 2013.

Figure 12: Comparison of sub-contractor per installation costs ($) in 2013

C-I-C

The decision to switch from Skilltech to Select Solutions avoided AusNet Services incurring substantial per installation cost increases, as foreshadowed in the letter from Skilltech to AusNet Services outlining the need for them to increase rates to improve profitability.[26] While we have not reviewed information about the cost of switching to Select Solutions (i.e. contract termination costs, hiring costs of new labour and any capital required to set up Select Solutions), based on the cost per installation information we have reviewed, it is our view that the decision to terminate the contract with Skilltech and set up Select Solutions was prudent.

A further cost relating to labour market conditions stemmed from a $5 per installation incentive program that AusNet Services initiated commencing September 2013. This was introduced as a way of retaining installers, who were in 2013 being actively 'poached' to undertake works for other distributors. AusNet Services advises that this program was introduced with a number of safeguards:

- Payment reserved until the end of the scheduled rollout period, when other businesses' AMI Programs would be coming offline and therefore ease the pressure on the installer labour market (December 20, 2013)
- Payment subject to the installer remaining with the program until December 20, 2013
- Quality controls, total bonus paid reduce upon the receipts of formal warnings of poor performance or skipped/cancelled jobs according to the following schedule

[26] Skilltech, Letter to AusNet Services, 31 December 2012.

- First strike: 20% reduction in the total bonus paid
- Second strike: 40% reduction in the total bonus paid
- Third strike: no bonus to be paid

During the incentive program, 28,958 installations were successfully undertaken by subcontracted installers, with incentive payments being made.

5.1.2.2 Conclusions

Customer resistance, regulatory requirements (in respect of meter board holes), technical issues (including meter over-heating) and tight conditions in the labour market are the prime reasons for cost increases, each being largely out of AusNet Services's control.

Expenditure excess was driven by:

- Nature of the rollout obligation (5I.8(c)): significant delays were caused by the policy uncertainty and the customer issues surrounding the AMI Program. Costs associated with these delays were exacerbated by the obligation to make best endeavours to complete AMI installations by the end of 2013. In meeting this obligation AusNet Services implemented incentive programs and created an in-house installation capability, a capability that also reduced their average installation costs.
- State of the technology (5I.8(d)): the installation supply chain was disrupted by the meter procurement issues relating to the 2011 meter overheating fault (discussed in Section 4.2), leading to delays that necessitated higher than expected meter installations in 2013.
- Inherent risks in the AMI project (5I.8(e)): The issues relating to meter procurement, customer resistance, regulatory obligations and tight labour market conditions are inherent risks of projects such as the AMI rollout, particularly given the mandatory nature of the project timeline.
- Market conditions (5I.8(f)): the tight labour conditions faced by the Victorian electricity distributers during the AMI rollout put upward pressure on per meter installation costs.
- Regulatory obligation (5I.8(g)): The ESV requirement for the coverage of meter board holes increased the average installation costs faced by AusNet Services in 2013 beyond the forecast budget.

Having considered AusNet Services's actions in response to the challenges detailed above, in our view the $19.9 million of excess meter supply expenditure in 2013 meets the prudency tests in clause 5I.8 of the OIC.

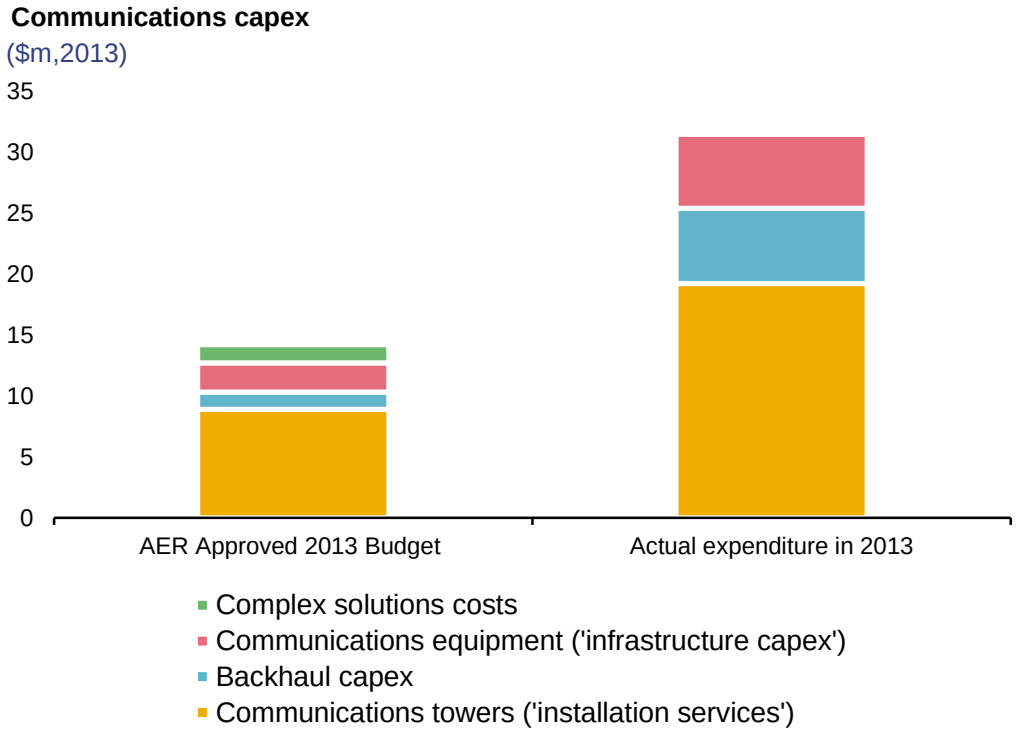
5.1.3 Communications infrastructure and installation capital expenditure

Communications infrastructure and installation capital expenditure relates to the costs of constructing communications network infrastructure, including:

- Site acquisition
- Architectural design
- Site build
- MPLS install

As shown by the figure below, communications infrastructure and installations capital expenditure in 2013 exceeded the AER budget by $17.3 million.

Figure 13: Comparison of 2013 communications infrastructure and installation capital expenditure against the AER determined budget ($m)

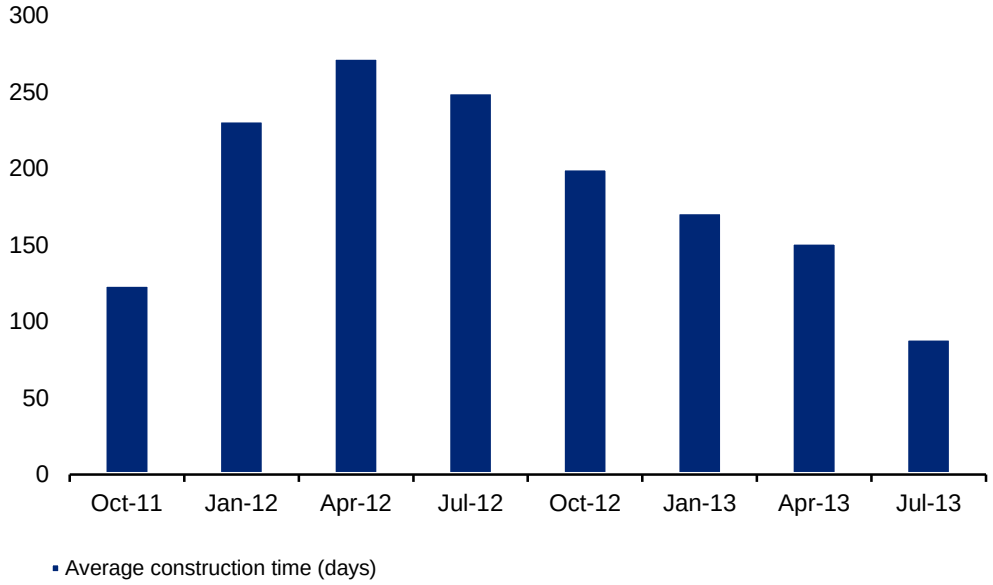


5.1.3.1 Discussion

The key reasons for this expenditure excess were:

- Delayed capital expenditure: there were 42 more towers completed in 2013 than was anticipated in the AER budget, following on from 24 fewer than expected towers completed in 2012. Much of this delay arose from a longer than anticipated lag between site acquisition and the completion of construction works. Many of the sites acquired from mid-2012 onwards were not completed until 2013, significantly increasing communications capital expenditure in 2013 (see Figure 14 below).
- Average tower construction costs exceeded the AER budget by $82,532 per tower over the entire AMI rollout, largely due to the higher than expected costs of site acquisition and/or leasing of land.
- Additional staff requirements, needed to assist with site negotiations, design modifications and stakeholder management

Figure 14: Average site construction time at date of acquisition (days)



We have reviewed data detailing:

- AER determined total communications capital expenditure budget[27]
- Individual tower site data, detailing:[28]
    - The type of site (green field, existing radio tower, third party colocation, etc.)
    - Dates of acquisition, completed construction and the date the site became operational
    - The contracted costs negotiated with NewNet
    - The actual costs of acquisition, construction and connection

Figure 15 shows that the costs of acquiring, constructing and connecting communications towers markedly increased in 2012 and 2013. This is particularly evident for construction costs.

[27] AER 2011, Final Determination: Victorian AMI 2012-15 budget and charges, p.122
[28] Provided by AusNet Services

Figure 15: Breakdown of tower costs ($)

C-I-C

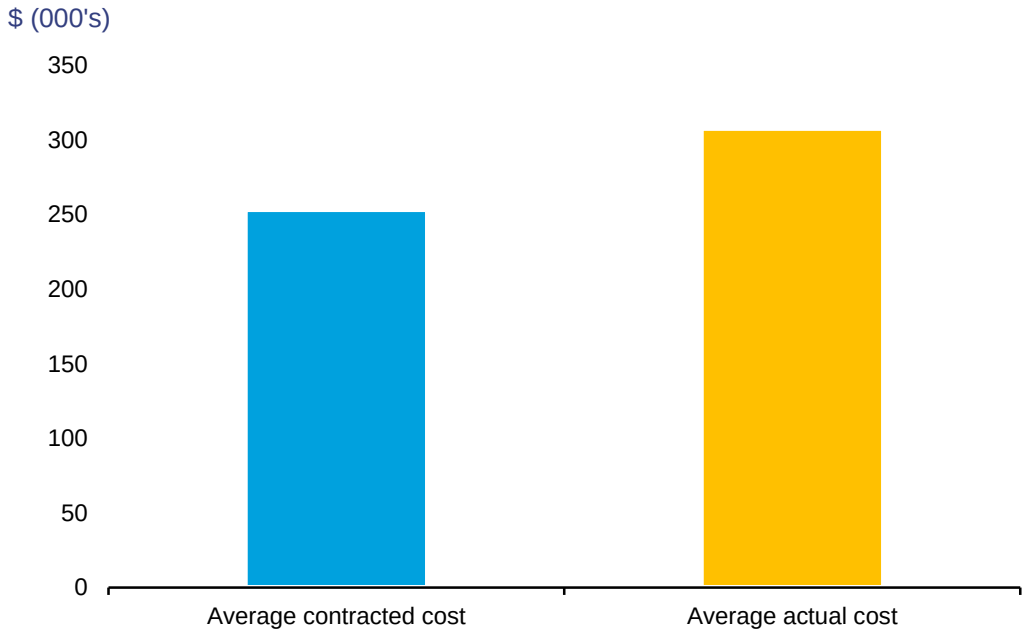
Community backlash

One of the key drivers of increased tower costs in 2012 and 2013 was the community backlash associated with the construction of communications network infrastructure as well as the broader community animosity towards the AMI program (see Section 4.1). This manifested in higher average:

- Acquisition costs, particularly where sites had to be relocated. Relocations were particularly expensive when they necessitated a change to a greenfield site as was the case for four sites.
- Construction costs. Following acquisition, many sites experienced opposition from neighbours and community groups, leading to site construction delays and redesigns.

Figure 16 shows that these site relocations and renegotiations with contractors resulted in average communications infrastructure capital expenditure that was, on average, 21% higher than the initial agreements signed between AusNet Services and the project contractors.

Figure 16: Comparison of average original contracted and actual communications infrastructure costs (Average costs across 70 towers installed throughout the rollout period)



The overall average result outlined in Figure 16 masks some underlying trends in tower construction costs, whereby the costs for some sites exceeded the contract forecast but some sites ended up costing less than expected. The tower cost changes occurred for a range of reasons that are specific to each site, including changes in the classification of sites from greenfield to co-located and vice versa, or increased costs related to negotiation with community representatives, as AusNet Services and its contractors responded to the challenges in site acquisition and construction. To demonstrate the varied nature of the capex program, AusNet Services has provided some information on particular sites, outlined in the following case studies. These highlight the uncertainty that AusNet Services and its contractors faced when forecasting the communications capex costs and the reasons that actual costs differed from forecasts.

Case studies

To illustrate the impact of increased community interest and resistance in communications network, we have reviewed a number of case studies provided by AusNet Services, which provide examples of the issues AusNet Services has faced in acquiring, constructing and connecting communications towers.

Case study 1: Seville (Wandin North)

C-I-C

Case study 2: Warragul

C-I-C

Case study 3: Pakenham Zone Substation

C-I-C

Case study 4: The Basin

C-I-C

5.1.3.2 Conclusions

Increases in per tower costs compared to the AER benchmark were driven by higher than expected costs of site acquisition, site negotiations, design modifications and stakeholder management. These costs were largely out of AusNet Services's control.

Excess expenditure was driven by:

- Nature of the provision, installation, maintenance and operation of the AMI and associated systems and services, and the nature of the rollout obligation (5I.8(b) & 5I.8(c)): community resistance to the AMI rollout program resulted in increased site acquisition costs, lease renegotiations, tower redesigns and site relocations. The mandatory nature of the rollout program, and the political environment, weakened AusNet Services's bargaining power in responding to these situations (see case studies above).
- Inherent risks in the AMI project (5I.8(e)): The issues relating to site acquisition, community engagement, site redesigns, relocations are inherent risks of projects such as the AMI rollout, particularly given the program involved installing towers in built-up areas.

Therefore, having considered AusNet Services's response to these challenges, in our view the $17.3 million excess communications expenditure in 2013 meets the prudency tests in clause 5I.8 of the OIC.

5.1.4 IT (meter data services) capital expenditure

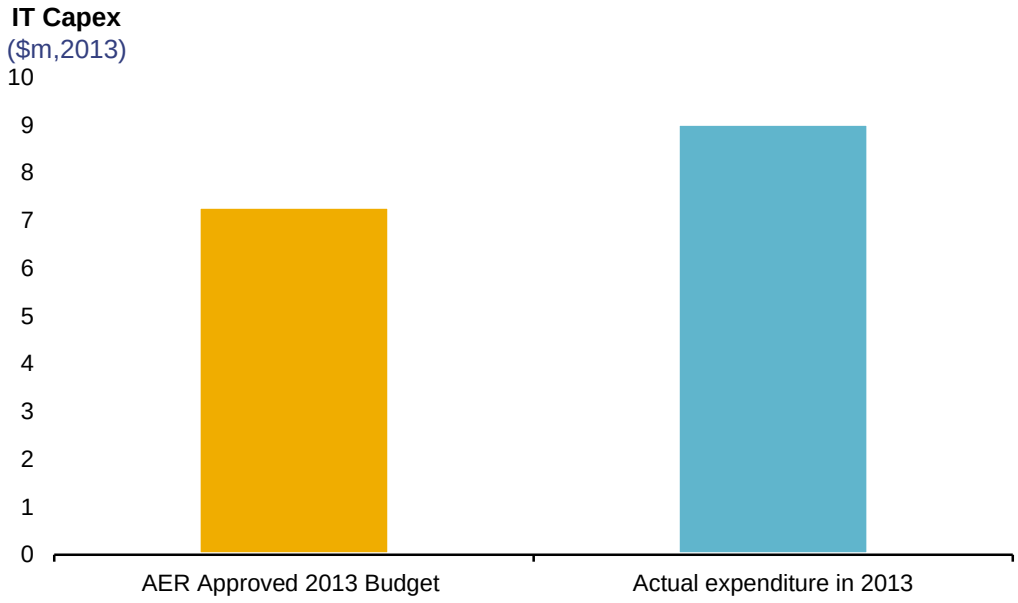
IT capital expenditure relates to costs incurred in building IT systems, including:

- Hardware
- Platform software licences and maintenance
- System integration and software customisation
- Asset and network management systems
- Workforce scheduling and mobility
- Connection point management systems
- Outage management systems
- Meter data management systems

- Performance and regulatory reporting systems
- Program support systems

As shown by the figure below, IT capital expenditure in 2013 was $1.7 million above the AER benchmark of $7.3 million.

Figure 17: Comparison 2013 meter data services capital expenditure against the AER determined budget ($m)



5.1.4.1 Discussion

In relation to the key cost areas:

- Customer Information System expenditure relates to the portion of the CIS allocated to the AMI program under cost allocation rules previously agreed with the AER. This includes application development and test planning and execution. In 2013, AusNet Services undertook more of these activities than it anticipated.
- Network management system (NMS) expenditure comprises the communications network management and meter management systems (MMS), providing an interface between the different environments which constitute the overall information systems. In 2013, AusNet Services undertook a range of tasks which were not anticipated in its original budget, which related to:
    - The implementation of event management, performance management, fault management and correlation management of the NMS;
    - The implementation of High Availability and Disaster Recovery (HADR) requirements;
    - Application design and design validation of existing communication network; and
    - Alignment of build outcomes to AMI solution architecture and operational support.
- Data warehouse expenditure relates to the portion of data warehouse costs allocated to the AMI program under cost allocation rules previously agreed with the AER. This expenditure was required to deal with the additional volumes of interval data associated with the AMI Program. AusNet Services did not anticipate incurring expenditure for its data warehouse in 2013, rather this expenditure was included in

the 2012 budget but was pushed back due to the overall program delays discussed in this report.

- Performance reporting and testing expenditure was not included in AusNet Services's 2013 approved budget. Expenditure in this category includes:
    - The development of a test strategy for the AMI solution
    - The rectification of defects identified during testing
    - A test readiness review
    - Test reporting including traceability of testing to business requirements.
- Release management activity encompassed the processes responsible for planning, scheduling and controlling the build, test and deployment of releases, and for delivering new functionality required by the business while protecting the integrity of existing services. Expenditure on release management was not included in AusNet Services's 2013 approved budget, as these activities were expected to be carried out in 2012.
- Enterprise Application Integration activity included interface design and infrastructure requirements and interface enhancements, test planning and execution. Similar to release management activities, Enterprise Application Integration activities were expected to be incurred earlier in the rollout period and therefore were not included in the 2013 approved budget.

AusNet Services has faced considerable technical challenges in its AMI rollout, some of which are associated with the communications technology and some of which are associated with overall system integration problems and discreet issues with particular systems. We have not carried out a detailed review of the technical challenges which have in part driven AusNet Services's expenditure excess in IT capex as this would be require an extensive investigation which is beyond the scope of our analysis. However, we have reviewed documents prepared by AusNet Services at various points in the rollout which identify the considerable challenges it has faced and the decisions which it has made to resolve issues. There have been a number of internal and external reviews of AusNet Services's AMI IT architecture which have sought to resolve major difficulties in system performance and integration. Some of these difficulties have resulted in expenditure was not anticipated at the time the 2013 budget was determined.

The timeframes for the AMI program including the delivery of daily meter data for the installed meters which were mandated in the OIC required AusNet Services to quickly resolve complex problems. In the meantime, AusNet Services was required to continue to operate its manual meter reading and meter data services to ensure that it met its market requirements under the National Electricity Rules. This has resulted in adverse outcomes and cost overruns. For example, short term workarounds to problems have been implemented to meet market requirements, but doing so has caused cost increases over the longer term.

We note that not all of the problems faced by AusNet Services have been associated with technical issues and some were associated with project management of the IT capital program. We have reviewed internal AusNet Services documents which suggest that management of the IT capital program in 2013, in hindsight, was not optimal.

Given the nature and extent of the AMI Program and its impact on AusNet Services's business, it is difficult to accurately separate the excess costs incurred which were associated with unforeseen technology challenges, cost increases caused by broader economic conditions, program delays caused by factors outside of AusNet Services's control, and AusNet Services's project management of the IT capital program. All of these played a role in the cost increases in this area. However, our review has confirmed that the

issues faced are significant in their effect on the rollout and have led to AusNet Services incurring costs over and above the budgeted allowance for the AMI Program.

Overall, we consider that the majority of AusNet Services's IT capex overspend is likely to satisfy the requirements of the OIC, however a portion will not. Ultimately it is not possible to exactly calculate expenditure that does and does not meet the requirements of the OIC. However we have considered the range of drivers for excess costs and believe that the factors clearly outside of AusNet Services's control (being those associated with customer backlash, the Government review of the mandated rollout, labour market constraints and regulatory changes) have less impact on the IT capex components of the AMI Program than on other cost categories.

On balance we consider that 50% of the total expenditure excess relating to IT capital expenditure is likely to meet the prudency requirements. This is necessarily an estimate based on judgement but we consider it appropriately reflects the range of factors contributing to the excess expenditure on IT capex in 2013.

AusNet Services has provided us with details of a new AMI program management and governance structure that it has implemented in 2014. A key focus of the new structure is to address the IT issues that led to excess expenditure and performance issues in 2013.

5.1.4.2 Conclusions

The excess expenditure in this category relates to the back office IT systems that AusNet Services has put in place to meet its meter data handling requirements under the OIC and Minimum Specifications and Service Levels. Some of the excess expenditure is associated with the fact that systems were delayed in line with the meter installation schedule, and thus costs were incurred in 2013 that had been anticipated in 2012. As for other categories of capex discussed above, we consider this delay in expenditure to be a result of a range of factors largely outside of AusNet Services's control, discussed in Chapter 4.

However, some of the excess expenditure is associated with the direct and indirect costs of resolving technical problems which AusNet Services has faced during the AMI Program. We have estimated that 50% of the expenditure excess in this category is likely to be prudent.

Considering the factors in Clause 5I.8 of the OIC, in our view the excess expenditure was driven by:

- Nature of the rollout obligation (5I.8(c)): AusNet Services was required to install new systems to support the AMI meter data, requiring substantial investments in IT capex over the rollout period. Delays in the program and unanticipated technical problems have led to excess expenditure, which was exacerbated by the mandatory nature of the rollout obligation and the timeframes in the OIC.
- State of the technology (5I.8(d)): the considerable technical challenges faced by AusNet Services in the AMI Program relate to the fact that the technology being employed was cutting edge and implemented at a large scale within a defined timeframe. In our view, under such circumstances cost overruns are to be expected.
- Inherent risks in the AMI project (5I.8(e)): There are inevitably cost risks associated with a cutting edge technology project, the implications of which are difficult to forecast. Delays in the rollout caused by the review of the program and customer backlash also impacted on the IT capex program, resulting in more costs being incurred in 2013 than anticipated.
- Regulatory obligation (5I.8(g)): The requirement for AusNet Services to continue to operate its existing meter data systems at the same time as shifting customers onto the new AMI systems within a defined timeframe has contributed to the problems faced and the cost overruns.

- Project management of the IT capital program.

Overall, we consider that $0.8 million of IT capex expenditure excess in 2013 meets the prudency tests in clause 5I.8 of the OIC.

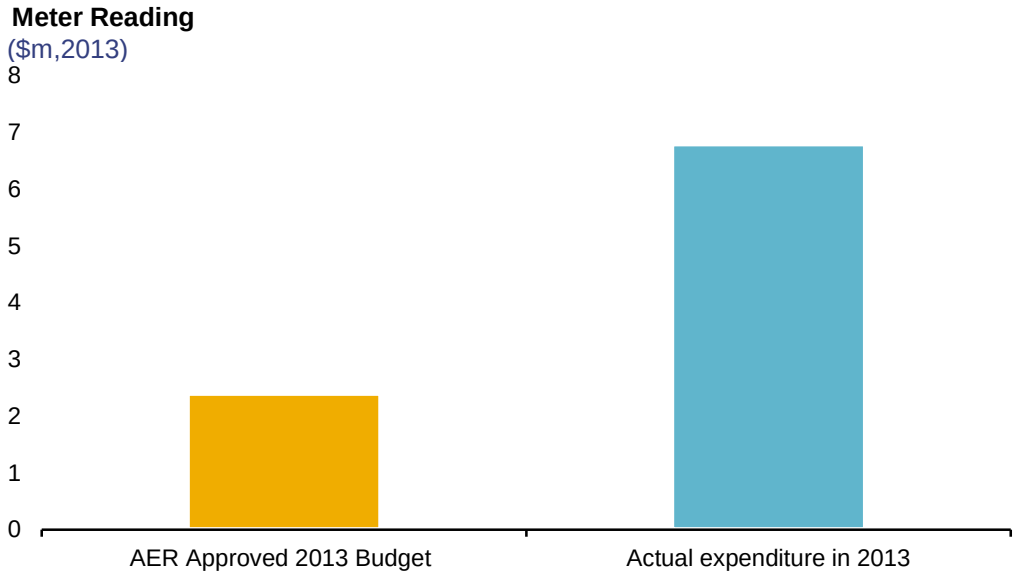
5.2 Operating Expenditure

5.2.1 Meter Reading

Meter reading expenditure relates to the costs associated with the manual reading of meters including labour and vehicle costs.

As shown by the figure below, meter reading expenditure in 2013 exceeded the AER budget of $2.4 million by $4.4 million.

Figure 18: Comparison of 2013 meter reading expenditure against the AER determined budget ($m)



5.2.1.1 Discussion

AusNet Services has provided documentation outlining the key reasons for this overspend were:

- Lower than expected reduction in manual meter reading requirements due to:
    - Delays in logical conversions as a result of delayed meter deployment. It was anticipated that 75% of meters would be logically converted by December 2012. Instead, only 5% were logically converted. Therefore, as at December 2012, 673,000 meters required manual reading as opposed to approximately 160,000 manual reads anticipated in the AER budget.
    - The 15 step consumer issues management plan agreed with the Victorian Government in complying with the Victorian Government Customer Issues Management for Smart Metering Technology Rollout Protocol. As a result, refusing customers could not be disconnected, increasing manual meter reading requirements.
- Higher than expected per meter reading costs (see Figure 18 below). Costs increased as a result of:
    - A lower density of meters along reading routes
    - A greater proportion of manually read interval meters which takes up to 5 minutes to read as compared to Type 6 meters which take approximately 10-20 seconds to read
    - Site difficulties in reading meters relating to customer obstruction

Figure 19: Decline in productivity of routine meter reading in 2013

C-I-C

Deloitte has reviewed data detailing meter reading productivity at the other Victorian electricity distributors for which Select Solutions performs meter reading services. This shows that the decline in meter reading productivity throughout the AMI rollout was not restricted to AusNet Services (see Figure 20 below).

Figure 20: Declining meter reading productivity at C-I-C and C-I-C in 2013

C-I-C

In addition to the data above on the costs of meter reading, we have reviewed the following information provided by AusNet Services:

- The Victorian Government Customer Issues Management for Smart Metering Technology Rollout Protocol, requiring that customers refusing an AMI meter continue to have their meters manually read

- Evidence that increased average distances between meter read locations is a key driver of reduced productivity, including maps showing the sporadic nature of manual meter reading routes due to the unevenness of the AMI rollout. Figure 21 below presents an example of a meter reading route in which logically converted meters are presented in green and all other colours represent meters that require manual reading. This map shows that there are significant distances between the remaining meters requiring manual reads along the route, which increased the unit costs of meter reading from their historic levels.

Figure 21: Beaconsfield meters dashboard – an example of the sporadic distribution of meters requiring manual meter reading

C-I-C

Based on this information, we believe that the excess expenditure relating to meter reading opex has been primarily driven by the following four factors:

1. Delays due to fewer than expected logical conversions of installed meters, which related both to delayed meter capex, installation labour market pressures and technical issues including management of the IT program
2. Delays caused by the review of the AMI Program in 2011 and associated regulatory changes
3. Costs associated with the need to continue reading meters for customers that refused an AMI meter, due to the implementation of the Victorian Government's approved 15 step consumer issues management plan
4. Declining productivity (and rising costs per meter) resulting from lower manually read meter density, to the extent this wasn't provided for in the AER budget.

As we have noted in the previous section in relation to IT capex, the information we have reviewed has suggested that there were a range of challenges faced by AusNet Services in the AMI Program, some of which related to project management of the IT capital program, which may have played a part in the fewer than expected logical conversions of installed meters.

Again, it is extremely difficult to identify the contribution that project management of the IT capital program has made to expenditure excess in 2013. In our view external factors (including customer backlash and processes implemented to deal with this such as the Customer Issues Management Protocol, Government review of the mandated rollout and labour market constraints) are likely to be the biggest drivers. Our estimate is therefore that 75% of this excess expenditure is likely to be prudent, while 25% of the excess expenditure is not likely to meet the prudency test in the OIC. We recognise that this

adjustment is an estimate based on judgement but we consider it appropriately reflects the uncertainty as to cause and effect in relation to the delay in logical exchange of meters which impacted the meter reading costs.

5.2.1.2 Conclusions

The excess expenditure in this category relates to fewer than expected logical conversions in 2011 and 2012; delays caused by the Government review of the mandated AMI rollout; and the inability for AusNet Services to disconnect refusing customers under the Customer Issues Management Protocol and as a result, manual meter read requirements were higher than expected in 2013. Furthermore, the sporadic nature of the rollout reduced the density of the remaining manual meter reading routes, increasing the cost of routine meter reads and requiring more meter readers than anticipated.

Based on the information we have reviewed, we understand that the technical systems integration problems relating to logical conversions were caused by a range of factors, and we note that such technical problems are common in projects of the size and scope of the AMI Program. However, on balance we also consider that it is likely that some aspects of the IT capital program could have been better managed by AusNet Services in 2013, and that this has in part contributed to the excess expenditure in this category.

In relation to the factors in Clause 5I.8 of the OIC, excess expenditure was driven by:

- Nature of the rollout obligation (5I.8(c)): installation delays caused by policy instability and customer resistance to the AMI program decreased the density of meter reading routes and contributed to logical conversion delays.
- State of the technology (5I.8(d)): the technical problems with logical conversions.
- Inherent risks in the AMI project (5I.8(e)): The issues relating to meter procurement, installation and technical issues are an inherent risk in projects such as the AMI Program.
- Regulatory obligation (5I.8(g)): the customer management protocols introduced to deal with refusing customers limited AusNet Services's options for reducing costs through disconnections.

We consider that a proportion of AusNet Services's meter reading opex overspend is likely to satisfy the requirements of the OIC. However, AusNet Services has not demonstrated that all of the excess expenditure meets the requirements of the OIC.

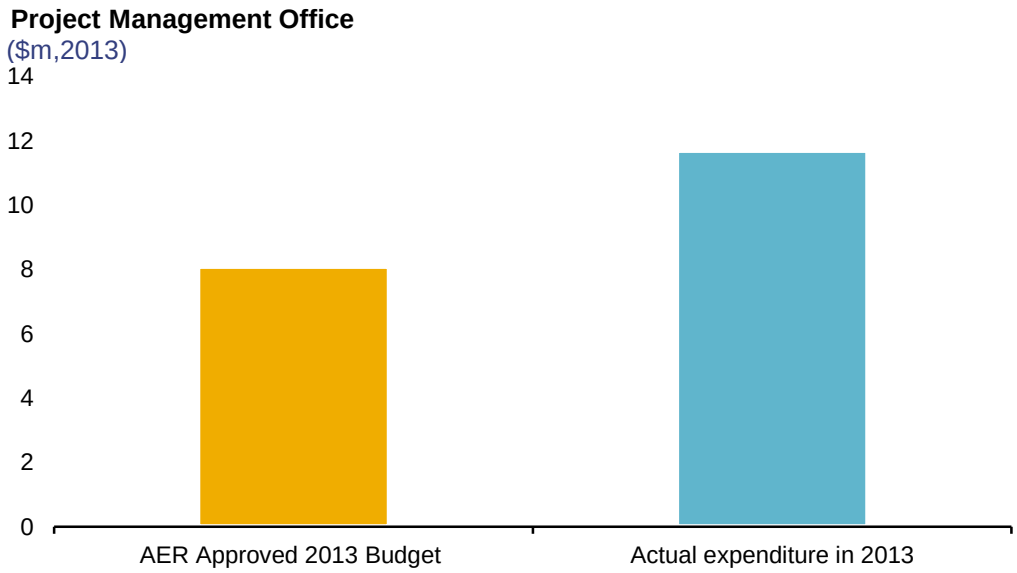
Overall, we consider that $2.9 million of the $3.9 million excess expenditure in this category meets the prudency tests in clause 5I.8 of the OIC.

5.2.2 AMI PMO

AMI PMO expenditure relates to costs incurred in steering the delivery of the AMI program.

As shown by the figure below, AMI PMO expenditure in 2013 exceeded the AER budget of $8.1 million by $3.6 million.

Figure 22: Comparison of 2013 AMI PMO expenditure against the AER determined budget ($m)



5.2.2.1 Discussion

AusNet Services has indicated that the key reasons for the expenditure excess in this area were project delays. In 2013 223,633 meters were installed compared to a forecast of 142,589.

Furthermore, the PMO was involved with addressing the source of these delays, which included the technical issues relating to meter procurement and the logical conversion of meters (see Section 4.2), as well as increased customer management requirements under the Customer Issues Management Protocol (see Section 4.1).

We also note that market pressures required AusNet Services to change its meter installation arrangements in 2013. Although costs relating to supplier sourcing were excluded by Impaq and the AER in its Final Determination on the basis that these activities should have been completed, we consider they were appropriately incurred in 2013 as a legitimate response to increased costs.

On a per meter installed cost basis, PMO costs in the Final Determination were $57, compared to AusNet Services's actual costs of $53.

We have reviewed the following information provided by AusNet Services, including

- A list of manager roles and responsibilities
- A list of Governance and steering committees along with their respective terms of references.
- Data detailing:
    - The number of FTEs in 2013
    - The salaries and wages of PMO members

In the Final determination budget, an average cost per FTE of $165,000 was determined prudent.[29]

[29] AER 2011, Final Determination: Victorian AMI 2012-15 budget and charges, p.112

In 2013, the actual average cost per FTE incurred by AusNet Services's PMO was $118,726, $47,275 less than the average FTE cost determined to be prudent by the AER (that is, 28% lower).

The excess expenditure in this category has resulted from the need to hire more FTEs to manage the AMI project, rather than existing employees being paid more than was deemed prudent by the AER. However, as we have noted in relation to IT capex and meter reading costs, there is likely to be some proportion of the excess PMO costs which are associated with AusNet Services's project management of IT capital expenditure, which we consider could have been more efficient. It is not possible to identify the proportion of the excess expenditure attributable to this factor, so we consider it is appropriate to apportion the excess PMO costs according to the overall proportion of costs which we have reviewed and found to be not prudent. This results in a finding that 2.8% of the excess PMO costs may not meet the tests in the OIC.

5.2.2.2 Conclusions

The excess expenditure in this category relates to the need to maintain a greater number of PMO staff to deal with the issues surrounding the AMI program. We note that the average wages paid to AusNet Services PMO staff was substantially below the AER determined commercial standard, however, that there is likely to be some increase in these costs driven by project management of the IT capital program that could have been more efficient.

In relation to the factors in Clause 5I.8 of the OIC, excess expenditure was driven by:

- Nature of the rollout obligation (5I.8(c)): The AMI PMO had to manage the delays were caused by the policy uncertainty and customer issues. Costs associated with these delays were exacerbated by the mandatory nature of the rollout obligation to make best endeavours to complete AMI installations by the end of 2013.
- State of the technology (5I.8(d)): the AMI PMO required additional resources to manage the technical issues relating to the AMI Program, which resulted in IT capital program delays.
- Inherent risks in the AMI project (5I.8(e)): The issues relating to meter procurement, customer resistance, regulatory obligations and tight labour market conditions are inherent risks of projects such as the AMI rollout, particularly given the mandatory nature of the project timeline. Consequently, excess PMO costs are also an inherent risk in a project of this type.
- Market conditions (5I.8(f)): the PMO required additional resources to manage the adverse market conditions faced by the Victorian electricity distributers, particularly the push for additional rates by meter installation companies, meter shortage issues and the threat of losing installers to competitors. Actions taken include the meter installation incentive program and the decision to sever the installation contract with Skilltech in favour of setting up an in-house installation capability through Select Solutions.

Deloitte has identified, based on the information we reviewed, that part of expenditure excesses in the IT capex and meter reading categories do not meet the prudency requirements of the OIC. Consequentially, we consider that a similar proportion of project management and overhead costs associated with this imprudent expenditure excess are also likely to be imprudent.

Based on the proportion of IT capex and meter reading opex which we identified as prudent (being 2.8% of the total expenditure excess which we reviewed), this results in a finding that 2.8% of the PMO costs are not likely to meet the tests in the OIC.

Accordingly, Deloitte believes that $3.5 million of the $3.6 million excess PMO expenditure in 2013 meets the prudency tests in clause 5I.8 of the OIC.

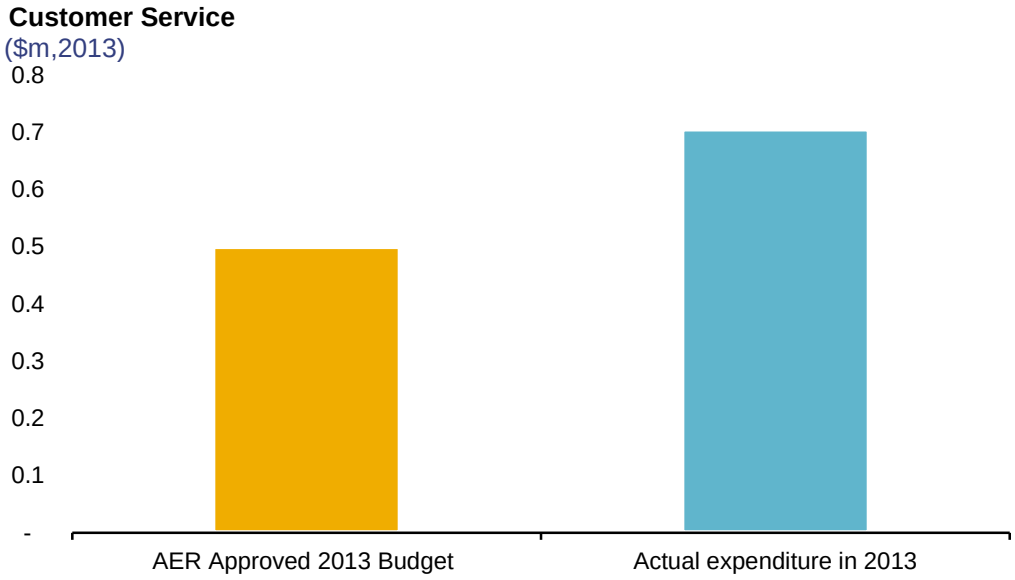
5.2.3 Customer services cost

Customer services costs relate to costs incurred in managing customer relationships including:

- Assisting with inquiries
- Managing refusals
- Educating customers

As shown by the figure below, customer services expenditure in 2013 of $0.7m was $0.2m higher than the AER budget. It follows a substantially larger under-spend in 2012.

Figure 23: Comparison of 2013 customer service expenditure against the AER determined budget ($m)



The key reason for the higher than forecast expenditure was the implementation of a new customer service plan, required by the Victorian Government Protocol for Customer Issues Management for Smart Metering Technology Rollout.

Figure 24 maps the steps that the Victorian electricity distributers are required to take when managing cases of customer refusal of AMI installation. The figure shows that customers are in control of the process, with the distributors required to individually tailor solutions to alleviate customer concerns. This process can take up to eight weeks, with case reviews for cases not resolved within that timeframe.

Figure 24: Protocol for Customer Issues Management for Smart Metering Technology Rollout

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Given the increased customer service and management requirements that derived from the above, we consider that the excess expenditure of $0.2m in this category was necessary to meet the obligations placed on AusNet Services.

5.2.3.1 Conclusions

Excess expenditure in this category relates to the need to respond to community concerns surrounding the AMI program, much of which arose due to the politicised nature of the program.

The excess expenditure was driven by:

- Nature of the rollout obligation (5I.8(c)): customer service costs rose as a result of community concerns about the AMI program as well as the need to individually manage customers under the Protocol for customer refusals.
- Regulatory obligation (5I.8(g)): The implementation of the Protocol for customer refusals significantly increased the role of AusNet Services's customer service team.

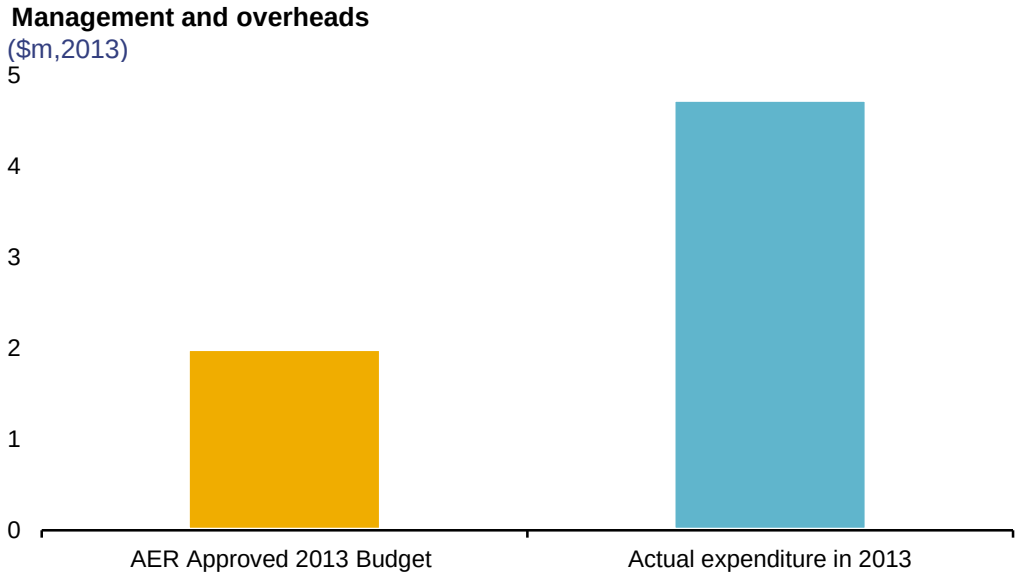
Therefore, as the options AusNet Services had for managing customer service issues were primarily shaped by Government actions, in our opinion the $0.2 million of excess customer service expenditure in 2013 meets the prudency tests in clause 5I.8 of the OIC.

5.2.4 Overheads and indirect costs

Overheads and indirect costs relate to the costs of running the AMI program which are outside the PMO office costs. They are essentially overhead costs allocated to AMI activities by AusNet Services managers who are not working full time on the AMI project. Costs have been allocated on the basis of actual time spent on AMI in 2013, utilising timesheets and the Activity Based Costing (ABC) process and outcomes.

As shown by the figure below, overheads and indirect expenditure in 2013 were $4.7 million, which exceeded the AER budget of $2 million by $2.7 million.

Figure 25: Comparison of 2013 management and overheads expenditure against the AER determined budget



Expenditure on services provided by SPI Management Services Pty Ltd (SPIMS) represents the largest proportion of this cost category. SPIMS provides strategic and management services to AusNet Services including employee management, business management and regulatory compliance activities. We have been provided with worksheets summarising actual SPIMS time spent on the AMI project in 2013. AusNet Services advises that the AER has previously consented to the SPIMS arrangement and cost allocation approach.

Key reasons for the 2013 overspend were delays in meter deployment, communications network infrastructure and logical conversion leading to additional resource and management costs and additional stakeholder management requirements.

We have reviewed data showing:

- The variation of actual management time spent on the AMI project from the allocated budget (based on timesheet summaries)
- The allocation of overheads across the expenditure categories.

The timesheet summaries show that the largest increases in management time were for senior management roles, ICT management roles, as well as regulatory, government advisory and legal management roles. Furthermore, in 2011 the incoming government set up a Ministerial Advisory Committee which required the regular attendance of managers from all the Victorian electricity distribution companies, as well as regulatory staff attendance (discussed in the following section).

We note that on a per unit cost basis, indirect costs in the Final Determination for 2013 were $14 per installed meter, compared to AusNet Services's actual costs of $21.

As we have noted in relation to the PMO costs, there is likely to be some proportion of the excess overhead costs which are associated with AusNet Services's project management of the IT capital program which we consider could have been more efficient. It is not possible to identify the proportion of the excess expenditure attributable to this factor, so we consider it is appropriate to apportion the excess overhead costs according to the overall

proportion of costs which we have reviewed and found to be not prudent (excluding PMO costs). This results in a finding that 2.8% of the excess overhead expenditure is not likely to meet the tests in the OIC.

5.2.4.1 Conclusions

Deloitte considers it reasonable that managers in these roles incurred more time in managing the political, regulatory and technical issues that arose during the AMI rollout, as well as the higher than anticipated number of meter installations. However, in our view there is likely to be some increase in overhead costs driven by management of the AMI Program that could have been more efficient, based on the fact that we have identified some imprudent expenditure in other categories.

In relation to the factors in Clause 5I.8 of the OIC, excess expenditure was driven by:

- Nature of the rollout obligation (5I.8(c)): delays caused by policy uncertainty and customer responses necessitated increased management time to ensure that best endeavours were made to meet the mandatory rollout timeline.
- State of the technology (5I.8(d)): The technical issues relating to the AMI program needed to be addressed at a management level, requiring more time than anticipated at the time of the Final Determination.
- Inherent risks in the AMI project (5I.8(e)): The issues relating to meter procurement, customer management, regulatory obligations, technology and tight labour market conditions are inherent risks of projects such as the AMI rollout, particularly given the mandatory nature of the project timeline.
- Market conditions (5I.8(f)): Dealing with adverse market conditions, particularly in the labour market, required significant increases in management time to manage installation companies and in implementing the meter installation incentive program.
- Regulatory obligation (5I.8(g)): The Ministerial Advisory Committee significantly increased management time spent on the AMI project, which was outside of AusNet Services's control.

Deloitte has identified, based on the information we reviewed, that part of expenditure excesses in the IT capex and meter reading categories do not meet the prudency requirements of the OIC. Consequentially, we consider that a similar proportion of overhead costs associated with this imprudent expenditure excess are also likely to be imprudent.

Based on the proportion of IT capex and meter reading opex which we identified as prudent (being 2.8% of the total expenditure excess which we reviewed), this results in a finding that 2.8% of the excess overhead costs are not likely to meet the tests in the OIC.

Accordingly, Deloitte considers that $2.6 million of the $2.7 million excess PMO expenditure in 2013 meets the prudency tests in clause 5I.8 of the OIC.

5.2.5 Sundry operating expenditure

Sundry operating expenditure comprises of:

- Audit and quality assurance costs
- AMI regulatory and policy costs
- Finance and administration costs.

As shown by the figure below, these combined costs exceeded the AER budget of $0.3m by $0.9 million.

Figure 26: Comparison of 2013 AMI opex (non-IT) expenditure against the AER determined budget ($m)

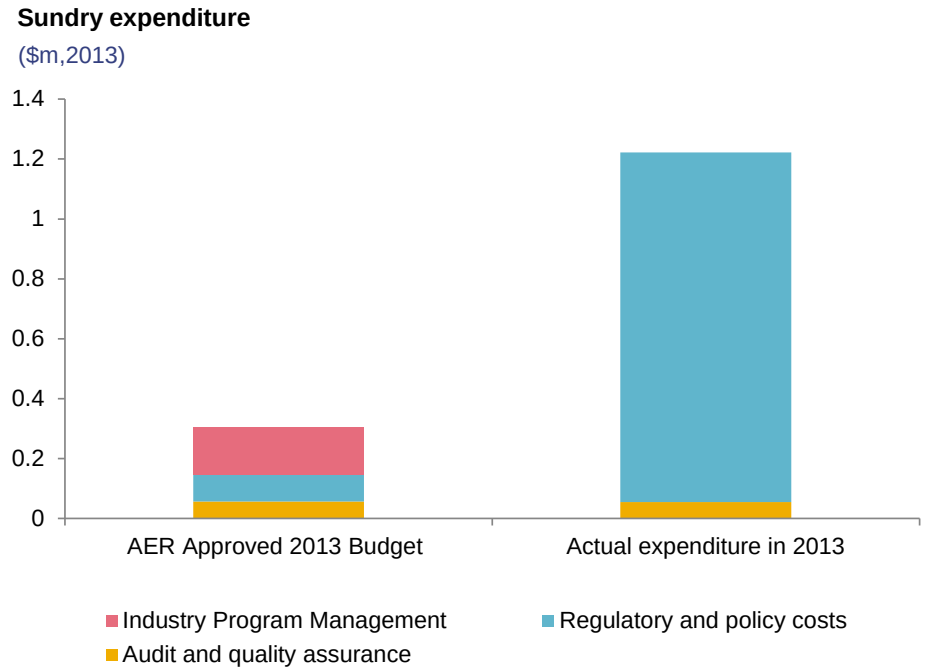


Table 6: Breakdown of AusNet Services indirect expenditure in 2013 ($,m)

Activity	AER budget	Actual expenditure	Variance
Audit and quality assurance	0.057	0.055	(0.002)
Regulatory and policy costs	0.088	1.167	1.079
Industry Program Management	0.158	0	(0.158)
Total	0.303	1.222	0.919

The majority of the excess expenditure in this category relates to regulatory and policy costs. Regulatory costs were incurred in responding to a number of unforeseen policy changes and other Government requirements that emerged in 2012 and 2013, as well as the charges revision application for 2014 charges. Some examples of the regulatory issues that led to costs being incurred include:

- Amendments to the OIC: To date, the OIC has been amended six times since the commencement of the AMI rollout, including substantial changes which required careful consideration in 2013.
- AMI Program Governance: Following the review of the AMI Program in 2011, governance arrangements were revised and a Ministerial Advisory Committee and

associated working groups were established, to which the Victorian electricity distributors have contributed. Participating in the various working groups has involved a considerable time commitment from AusNet Services's regulatory team, including fortnightly meetings with DSDBI to discuss the latest developments. New policies introduced by the Government, including those dealing with customers opposed to the AMI Program and the extension of the Victorian metering derogation from the National Electricity Rules, have required contributions from AusNet Services which were not anticipated at the time the 2013 budget was determined by the AER.

- The introduction of flexible pricing arrangements in mid-2013: while it was envisaged that new time of use pricing arrangements would be introduced during the AMI rollout, the regulatory arrangements surrounding the Victorian Government's decision to lift the moratorium required more time to be spent in liaising with policy makers on the structure of tariffs than was intended.

5.2.5.1 Conclusions

We consider it is unsurprising that the regulatory costs associated with the AMI Program have exceeded the original budget determined by the AER in 2011, given the large number of policy and regulatory changes which have occurred since the overall review of the AMI Program was completed.

Excess expenditure in this category was affected by:

- Nature of the rollout obligation (5I.8(c)): AusNet Services was required to use its best endeavours to install AMI within the determined timeframe in the context of an evolving policy environment, which required considerable time and expertise from regulatory policy staff members to navigate the changes.
- Inherent risks in the AMI project (5I.8(e)): The issues relating to meter procurement, customer management, regulatory obligations, technology and tight labour market conditions (all inherent risks associated with a program of the scale and scope of the AMI Program) required additional regulatory and policy resources.
- Regulatory obligation (5I.8(g)): The introduction of the Ministerial Advisory Committee following the Victorian Government review increased the workload of the regulatory and policy team.

Given the various challenges facing the AMI program undoubtedly required increased regulatory and legal workloads for AusNet Services, in our opinion the excess expenditure in this category is reasonable and meets the prudency test in clause 5I.8 of the OIC.

Limitation of our work

General use restriction

This report is prepared solely for the internal use of AusNet Services. This preliminary report is not intended to and should not be used or relied upon by anyone else and we accept no duty of care to any other person or entity. The report has been prepared on the basis of information provided by AusNet Services for the purpose set out in our engagement letter dated 21 March 2014. You should not refer to or use our name or the advice for any other purpose.

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Attachment 4 – Manual reading costs of accumulation meters

On 5 August 2014, the Victorian Government amended the Advanced Metering Infrastructure Cost Recovery Order in Council (the **Order**) to provide for the setting and regulation of charges that may be charged by a distributor where there is no interval meter installed.[18] The Victorian Government's position is that smart meters (or remotely read interval meters) are the standard metering technology in Victoria.

This amendment to the Order prevents distributors from recovering the manual reading costs associated with accumulation meters from customers with smart meters from 1 April 2015. Electricity distributors can make an application annually to the Australian Energy Regulator (AER) for a 'manual meter fee' which recovers the direct costs of manually reading accumulation meters. The first of these charges can be levied on customers that have elected to retain an accumulation meter between 1 April and 31 December 2015.

If a distributor choses to levy a manual meter fee, it is required to directly bill customers. That is, the manual meter costs are not passed onto retailers, as per standard industry practice.

AusNet's manual meter costs

It is expected that AusNet will have less than 7,500 accumulation meters by 1 April 2015, as a result of customers denying safe access to the site for the purposes of a smart meter installation.

The cost of manually reading 7,500 accumulation meters between 1 April and 31 December 2015 is estimated at approximately $517,000, based on an estimated cost of $23 per accumulation meter read with three reads over the period. This estimate excludes administrative costs associated with directly billing customers.

AusNet's approach

In accordance with the amendment to the Order, AusNet Services has excluded the costs of reading accumulation meters from its forecasts to ensure these costs are not recovered from customers with smart meters from 1 April 2015.

The Order amendment provides for the recovery of manual reading costs from customers with accumulation meters from 1 April 2015. AusNet Services has, however, elected to **not** recover manual reading costs during 2015. AusNet Services will continue to work with customers to roll out smart meters, and is committed to resolving any issues relating to the transition to smart metering technology.

AusNet will continue to closely monitor the deployment of smart meters during 2015, and will ensure its customers are kept informed of any changes to its position regarding manual meter fees.

[18] Victorian Government Gazette, No. S 263 Tuesday 5 August 2014