SPI Electricity Pty Ltd

Advanced Metering Infrastructure

AMI Subsequent Budget & Charges Application

Public Version

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SP AusNet
A member of Singapore Power Group

About SP AusNet

The SP AusNet group 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 indirectly servicing all electricity consumers across Victoria;
- An electricity distribution network delivering electricity to approximately 667,000 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.

SP AusNet's purpose is 'to provide our customers with superior network and energy solutions.' The SP AusNet 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.sp-ausnet.com.au

Contact

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The Application

The setting and recovery of prices, fees and charges relating to the Advanced Metering Infrastructure (AMI) program to roll-out interval metering to electricity consumers across Victoria, is regulated under the Order in Council[1] (the Amending Order) published in November 2008, and subsequent amendments.[2] The Amending Order provides for a 'cost pass through' approach and under clause 5A.1(c) SP AusNet is required to submit to the Australian Energy Regulator (AER) a budget application for the period 1 January 2012 to 31 December 2015 (the subsequent AMI budget period) and proposed charges for each of the years commencing 1 January 2012, 2013, 2014 and 2015.

Activities to be included in the subsequent budget application are defined as those activities reasonably required for the provision of Regulated Services and to comply with a metering regulatory obligation or requirement. The subsequent budget application is required to:

- contain expenditure for Regulated Services for each year of the subsequent AMI budget period;
- set out the total maintenance and operating and capital expenditure for each year of the subsequent AMI budget period; and
- distinguish between: (i) capital expenditure; and (ii) maintenance and operating expenditure and relate the expenditure to scope.

The AER is required to make a determination on the subsequent budget application based on tests of whether expenditure included in the Application is not within scope or is not prudent. Where an audit certification is provided, the AER is required to accept that certification.

The 'cost pass through' approach to price control requires the establishment of budgets at the beginning of the period, with annual charges for years within the period adjusted based on actual expenditure. The building block methodology used to determine regulatory charges requires the AER to provide for:

- a return on capital (over two separate WACC periods);
- depreciation;
- maintenance and operating expenditure;
- a benchmark allowance for corporate income tax; and
- any other building block required by clauses 5D, 5E and 5I of the Amending Order.

This submission represents SP AusNet's 'subsequent AMI budget period budget application and initial charges application' (the Application).

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

2 Victorian Government Gazette G4, ***'Notice pursuant to Clause 14B.1 of the AMI Cost Recovery Order'***, 22 January 2009, page143
Victorian Government Gazette G14, ***'Advanced Metering Infrastructure Order in Council 2009'***, 2 April 2009, page 856.
Victorian Government Gazette G42, ***'Advanced Metering Infrastructure Order in Council 2010'***, 21 October 2010, page 2570

The AMI Program

AMI provides for the roll-out of interval metering to electricity consumers across Victoria in accordance with the requirements of the Amending Order and the Functionality[3] and Service Level Specifications[4] applicable to the program. AMI has been acknowledged as a highly complex business and evolving technology based program with:

- new electronic meters providing the capability for measurement, remote control and data access and interfacing with future in-house display systems;
- communications networks capable of two-way data and control functionality in near real time;
- information and control systems to interface with and manage field infrastructure and in-house business IT systems for the purposes of remote reading and control, data management and transfer, customer services and customer transfer management for the purposes of facilitating retail competition in the marketplace.

Differing approaches in terms of technology choice, resourcing and work program approach have been proposed as individual businesses tailored their programs to suit customer, business and environmental needs specific to its own situation. SP AusNet's AMI solution is based on WiMAX technology, a standards-based wireless broadband technology, offering high-speed wireless access over long distances as the primary network, with a mix of other technologies providing secondary and in-fill solutions.

In addition to the metering and communications infrastructure deployed, AMI requires the development of significant Information and Control Services to support and interface with the external face of AMI. Key components include:

- A Network Management System (NMS), comprising a Meter Management System (MMS) and a Communications Network Management System (CNMS) to provide an interface between the different environments which constitute the overall information system, including the field environment of meters and communications infrastructure and the back-office environment of a SP AusNet's back-office system.
- Key business systems including the Meter Data Management System (MDMS) and the Customer Information System (CIS) which provide meter data, connection point and customer services functionality to meet the requirements of increased data volumes and functional complexity required under AMI.

Progress during initial AMI budget period

SP AusNet's AMI program has continued to develop and evolve since the commencement of the program in 2009 with the majority of contracts having been entered into for the procurement of equipment and services. Despite a level of push-back from some customers impacting the roll-out of meters, and uncertainty surrounding the Government's position with respect to the implementation of AMI and tariff matters, SP AusNet has achieved a significant level of progress in implementing its AMI solution.

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3 DPI, ***'Advanced Metering Infrastructure Minimum State-wide Functionality Specification – release 1.1'***, September 2008.

4 DPI, ***'Advanced Metering Infrastructure Minimum AMI Service Levels Specification – release 1.1'***, September 2008.

Progress in key streams of the program are summarised below:

(a) Metering

Contracts have been entered into for the procurement of metering assets and for the provision of metering installation services. A delay in the delivery of interval meters in 2010 required the continued use of accumulation and non-AMI meters for new connections; however SP AusNet expects the rollout to be on schedule by the end of 2011.

The per unit costs of meters delivered under the tender process has exceeded the costs forecast in the initial budget application, while actual installation costs are expected to be lower than forecast.

(b) Metering data services

During the period, SP AusNet has experienced a higher level of manual reads than initially forecast due to:

- the continued use of accumulation and non-AMI meters for new connections in 2010; and
- the need to validate remote data to manual reads;
- the inability to retire entire meter reading routes due:
    i. to the reluctance of some customers to grant access or participate in the rollout at this time; and
    ii. the lack of AMI capable meter types for some instances including multiphase meters; and
    iii. the later than forecast delivery of IT systems which has delayed logical exchange compared with forecast.

During 2010, SP AusNet transferred in-house meter data service provider functions previously supplied under The development of new systems and processes and their interfacing to existing systems and processes within the business has seen a higher than anticipated level of exceptions requiring significant manual input to ensure that business, market and regulatory requirements in respect of meter data services continued to be met. SP AusNet expects to be able to return to a normal level of exceptions processing during 2011.

During 2011, SP AusNet is required to undertake 'logical conversion' of installed manually read type 5 and type 6 meters to manually read type 5 (AMI) meters and update that information in both the SP AusNet and AEMO market systems. While this is expected to be mainly an automated process, a level of resourcing will be required to test, establish and manage the process. SP AusNet believes it is prudent to allow additional resourcing to manage and fix errors and exceptions that arise as part of the conversion.

(c) Communications

SP AusNet has entered into a contract for the provision and deployment of its WiMAX communications infrastructure. Timing issues have resulted in a lower number of base stations being installed in the initial budget period than initially forecast.

Validation of radio network design parameters and experience gained to date suggest that the WiMAX network may be extended to a greater proportion of customers than initially considered, however, SP AusNet is continuing to examine options for the most efficient, cost effective solution to deliver communications to customers via either the primary, secondary or in-fill solution.

Licence agreements have been entered with the spectrum owners for the necessary spectrum access required to support WiMAX across the SP AusNet network.

(d) Information and Control Services

A version of the MMS is in production and has enabled SP AusNet to achieve conditional accreditation as a Meter Data Provider in the National Electricity Market (NEM). A second release, expected to provide around 90% of the required functionality is currently in test and a further version delivering the required Home Area Network functionality is due for release in April 2011.The first release of the CNMS is due for delivery in 2011.

(e) Project Management and Training

As noted above, AMI is a complex program involving the development and implementation of systems, processes and infrastructure using state-of-the-art technologies on a scale not previously experienced across energy distribution networks in Australia. The Project Management and Training functions have continued to develop as the AMI program has evolved. In order to manage the diverse nature of the program and provide effective risk management, governance and reporting structures, SP AusNet has found it necessary to exceed the resource numbers and costs initially forecast in this area.

Program initiatives for the subsequent AMI budget period

During the subsequent AMI budget period, SP AusNet proposes to continue with the rollout of AMI meters to eligible existing and new connection customers. In addition, it proposes to complete the development and deployment of communications infrastructure, and information and control services to ensure the delivery of AMI related regulated metering services to the functionality, service levels and timeframes specified under the Amending Order.

(a) Metering

SP AusNet proposes to continue the rollout of AMI meters in accordance with the requirements of the Amending Order. For the purposes of this Application contracted prices for meters and meter installation services have been used. and the price of a 3G enabled meter has been included to be used in conjunction with a secondary network solution (assumed).

(b) Meter Data Services

The bedding down of systems, and enhancements to replace manual work-arounds are expected to bring the level of exceptions processing back to 5%.

The transfer from manual to remote reading following the completed rollout of AMI meters along entire reading routes will enable meter reader redundancies to commence from 2012.

(c) Communication

SP AusNet proposes to continue the deployment of the WiMAX primary network infrastructure in the coming period. It has adopted a phased approach to this program and now expects to install approximately 89 base stations in total.

In this Application SP AusNet assumes that the secondary network technology will be a 3G based solution. SP AusNet has provided initial forecasts based on its current understanding of solution options and market prices and these will be updated as more detailed information becomes available

SP AusNet is continuing to review the most appropriate, cost effective solutions for delivering secondary network and in-fill solutions to those parts of its supply region where the WiMAX primary solution is not practical or cost effective.

(d) Information and Control Services

Much of the Information and Control Services functionality has been, or will be delivered in the subsequent AMI budget period and apart from periodic software releases and other enhancements the ongoing support of the systems will be operating and maintenance expenditure.

In the case of the MMS, SP AusNet's secondary network solution may have an impact either requiring enhancements to the existing MMS solution or requiring a dedicated MMS. Upstream impacts to business systems including MDMS and CIS may also be expected.

For the purposes of this Application, SP AusNet has assumed that it will be necessary to provide additional hardware, software and support facilities for these and other system developments during the period.

(e) Project Management and Training

Project Management and training are expected to continue through to the end of the project and into the transfer of functions to the business. Resource requirements are expected to decrease as the needs of the project decline.

Budget Application

SP AusNet's forecast expenditure requirements for the subsequent budget period are summarised below in Table E1.

Table E.1 Total Regulated Services Expenditure

($,000, Real 2011)

Total AMI Expenditure	2012 (Forecast)	2013 (Forecast)	2014 (Forecast)	2015 (Forecast)
Total AMI Operating Expenditure (incl IT)	48,549	40,149	26,441	24,352
Total AMI Capital Expenditure (incl IT)	171,025	49,081	7,367	3,999
Total Regulated Services Expenditure (incl IT)	**219,575**	**89,231**	**33,808**	**28,352**

Recoverable Expenditure

The building blocks used to determine recoverable expenditure provide for:

- 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,

In the case of the subsequent AMI budget period, two values of WACC are required, one covering the initial AMI WACC period from 1 January 2009 to 31 December 2013 and the second covering the period 1 January 2014 to 31 December 2015.

The WACC for the first period has already been established at 6.77% (real post tax). For the purposes of this Application and consistent with the position recently outlined by the AER, SP AusNet has assumed a place holder value of 6.46% (real post tax) for the second AMI WACC period.

With regards to the estimated cost of corporate tax, SP AusNet has assumed a gamma of 0.2. The gamma is not an input into the WACC and, therefore, the proposed gamma is not applicable to the subsequent AMI WACC period but rather the entire 2012-15 subsequent AMI budget period.

Table E.2 summarises the Total Revenue Requirement for the period 2012 – 2015 as derived from the 'building block' approach.

Table E.2 Total Revenue Requirement

($m, Real 2011)

Building Block Categories	2012 (Forecast)	2013 (Forecast)	2014 (Forecast)	2015 (Forecast)	Total
Return on assets	20.01	24.20	21.72	19.17	**85.10**
Regulatory depreciation	43.41	53.00	45.53	44.75	**186.69**
Operating & Maintenance	48.55	40.15	26.44	24.35	**139.49**
Net 2009-11 Under Recovery	19.06	-	-	-	**19.06**
Total Revenue	**131.02**	**117.34**	**93.69**	**88.28**	**430.33**

Regulated Service Charges

SP AusNet's proposed Regulated Services charges for the period 2012-2015 are set out in Table E.3. SP AusNet considers that the proposed subsequent charges are determined in accordance with the methodology required under the Amending Order and are consistent with price controls and pricing principles contained therein.

Table E.3 Regulated Services Charges

($ Real 2011, GST exclusive)

Annual metering charge	2012 (Forecast)	2013 (Forecast)	2014 (Forecast)	2015 (Forecast)
Single phase, single element	$107.76	$123.75	$142.11	$163.21
Single phase, two element with contactor	$123.81	$142.19	$163.29	$187.52
Multi phase	$149.58	$171.78	$197.28	$226.55
Multi phase, with contactor	$165.93	$190.56	$218.84	$251.32
Multi phase Current Transformer connected	$213.66	$245.37	$281.79	$323.61

1 Introduction

1.1 Purpose

This Application on behalf of SP AusNet is made under clause 5A.1(c) of the Amending Order in Council[5] (the Amending Order) and subsequent amendments[6,] and sets out SP AusNet's:

- Budget requirements for the subsequent AMI budget period from 1 January 2012 to the End Date (31 December 2015); and
- Proposed initial charges for each of the years commencing 1 January 2012, 2013, 2014 and 2015.

1.2 Background

The mandated rollout of advanced metering infrastructure (AMI) to all Victorian electricity customers required the Regulator (then the Essential Services Commission of Victoria) 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[7] gazetted in August 2007 ('the original Order').

An Amending Order, based on a 'cost pass through' arrangement was published in November 2008, again revising the approach to setting prices for regulated metering services.

In January 2009, the Australian Energy Regulator (AER) published its **'Final Decision - Framework and Approach paper – Advanced metering infrastructure review 2009-11'**[8], setting out the approach to be followed in making a determination on the prices distributors charged for the regulated metering services specified in the Amending Order.

In accordance with the requirements of clause 5A.1 of the Amending Order, and the AER framework, SP AusNet lodged its 'Initial AMI budget period budget application'[9] (the Initial Budget Application) on 27 February, 2009 and its 'Advanced Metering Infrastructure Initial Charges Application'[10] (the Initial Charges Application) on 1 June 2009.

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

6 Victorian Government Gazette G4, ***'Notice pursuant to Clause 14B.1 of the AMI Cost Recovery Order'***, 22 January 2009, page143
Victorian Government Gazette G14, ***'Advanced Metering Infrastructure Order in Council 2009'***, 2 April 2009, page 856.
Victorian Government Gazette G42, ***'Advanced Metering Infrastructure Order in Council 2010'***, 21 October 2010, page 2570

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

8 AER, ***'Final decision - Framework and approach paper – Advanced metering infrastructure review 2009-11'***, January 2009.

9 SPA, ***'Initial AMI budget period budget application'***, 27 February 2009.

10 SPA, ***'Advanced Metering Infrastructure Initial Charges Application'***, 1 June 2009.

The AER Determination[11] of October 2009 established SP AusNet's Approved Budget for the initial AMI budget period of 1 January 2009 to 31 December 2011 and the initial charges to apply for regulated metering services for the years 2010 and 2011.

In October 2010, the AER approved[12] SP AusNet's Charges Revision Application[13] in regard to the charges to apply from 1 January 2011. These charges where identical to the approved charges from the AER final determination of October 2009.

In February 2011, in accordance with the provisions of clause 5F of the Amending Order, SP AusNet lodged with the AER an application[14] (the Revised Budget Application) to vary the Approved Budget set as part of the AER's October 2009 Budget and Charges Determination. This Revised Budget Application is currently with the AER for consideration.

1.3 Documentation relied upon

- 2009-2011 Revised Budget Application – SP AusNet, 28 February 2011;
- 2011 Charges Revision Application – SP AusNet, 31 August 2010;
- EDPR 2011-15, Related Party Arrangements – SP AusNet, November 2009
- EDPR 2011-15, Revised Related Party Arrangements – SP AusNet, July 2010.
- Various SP AusNet responses to AER and ESC questions both pre and post the Draft Determination, July 2009;
- AMI Revised Budget Application – SP AusNet, 28 August 2009;
- AMI Initial Budget Application – SP AusNet, 27 February 2009 (initial) and 3 March 2009 (revision);
- AMI Consultation Paper: Revised Framework & Approach (December 2008) Response – SP AusNet, December 2008;
- AMI Revised Pricing Proposal – SP AusNet, September 2008;
- AMI Reference Documentation – SP AusNet, September 2008; and
- AMI Pricing Proposal – SP AusNet, December 2007.

11 AER, ***'Final Determination, Victorian AMI review, 2009-11 AMI budget and charges applications'***, Oct 2009.

12 AER, ***'Advanced Metering Infrastructure 2011 revised charges'***, October 2010.

13 SPA, ***'AMI 2011 Charges Revision Application'***, 31 August 2010

14 SPA, ***'AMI Revised Budget Application'***, February 2011.

2 Requirements of the Amending Order

2.1 Requirement to lodge application

Clause 5A.1(c) requires a distributor to make an application no later than 28 February 2011 with respect to:

> *(i) the subsequent AMI budget period (**'subsequent AMI budget period budget application'**); and*
>
> *(ii) setting initial charges for each of the years commencing 1 January 2012, 2013, 2014 and 2015 (**'2012-15 initial charges'**).*

Clause 5A.2 requires the AER to make a determination on this Application no later than 31 October 2011.

Clause 5.3 requires that the Application must set out the information and identify the documents relied upon or where such information has already been supplied identify where it can be found.

Clause 5.5 requires that:

> *'Subject to clause 5.3, a budget application and a charges application must also include:*
>
> *(a) the document or documents that set out the process (**'competitive tender process'**) that is proposed (or in the case of contracts already entered into, has been used) for competitive tenders for contracts for Regulated Services;*
>
> *(b) a forecast of the number of metering installations that the distributor proposes to install for each year of the period covered by the application.*

2.2 Period

The *'subsequent AMI budget period'* is defined as the period commencing 1 January 2012 and ending on the End Date (31 December 2015).

2.3 Requirements – Budget Application

Clause 5B.1 of the Amending Order states:

> *'A budget application must:*
>
> - *contain expenditure for Regulated Services for each year of the initial AMI budget period or the subsequent AMI budget period (as the case may be);*
> - *set out the Total Opex and Capex for each year of the initial AMI budget period or the subsequent AMI budget period (as the case may be);*
> - *distinguish between:*
>   i. *capital expenditure; and*
>   ii. *maintenance and operating expenditure; and*
> - *relate the expenditure to scope.'*

Clause 5C.2 requires that:

'The Commission [now AER] must approve the Submitted Budget [this Application] unless the Commission establishes that the expenditure (or part thereof) that makes up the Total Opex and Capex for each year:

(a) is for activities outside scope at the time of commitment to that expenditure and at the time of the determination; or

(b) is not prudent.'

As part of the Final Decision on the Framework and Approach, the AER has also indicated that it may require additional information in regard to contracts (including contracts with related parties) and competitive tendering processes (used or proposed to be used) to enable it to establish whether expenditure is out of scope or not prudent.

2.4 Requirements - Initial Charges Application

2.4.1 Regulatory Framework

The purpose of the AMI Cost Recovery Order (as amended) states[15]:

'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;

(bb) provide for side constraints on AMI Tariffs; and

(c) confer powers and functions on, and leave matters to be decided by, the Commission.'

where the metering services to be regulated are defined as:

'(a) metering services supplied to or on behalf of:

(i) first tier customers; or

(ii) second tier customers,

with annual electricity consumption of 160 MWh or less where:

(iii) the electricity consumption of that customer is (or is to be) measured using a revenue meter that is either an accumulation meter or a manually read interval meter; and

(iv) the distributor is the responsible person in respect of those services; and

(b) metering services supplied to or on behalf of:

(i) first tier customers; or

(ii) second tier customers,

with annual electricity consumption of 160MWh or less where:

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

(iii) the electricity consumption of that customer is (or is to be) measured using a revenue meter that is a remotely read interval meter; and

(iv) the distributor is the responsible person in respect of those services.'

2.4.2 Cost Pass Through Approach

The Amending Order provides for a 'cost pass through' approach to price control whereby 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.'[16]

Building block costs may be based on actual costs, forecast expenditure or a mix of actual and forecast.

The setting of input parameters used in the calculation of the Weighted Average Cost of Capital (WACC) are described in clauses 4.1 (i) and (j). Clause 4.1(i) applies to the initial WACC period (Start Date to 31 December 2013) while clause 4.1(j) covers the subsequent WACC period (1 January 2014 to End Date).

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 Regulator.

2.4.3 2012 – 2015 initial charges determination

Clause 5E of the Amending Order specifies the requirements on the AER in making a determination with respect to initial charges for the period 2012 to 2015.

'5E.1 In determining 2012–15 initial charges in respect of Regulated Services, the Commission must determine those charges in accordance with clause 4 and this clause 5E.

5E.2 The Commission must calculate the opening value of the metering asset base as follows, adjusting for inflation:

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

Opening Metering Asset Base $_{2012}$ = Opening Metering Asset Base $_{SD}$ + Capital Expenditure $_{IABP}$ – Depreciation $_{IABP}$ – Disposals $_{IABP}$

Where:

Opening Metering Asset Base $_{2012}$ *is the opening metering asset base at the start of 2012;*

Opening Metering Asset Base $_{SD}$ *is the opening metering asset base for 2009 as calculated under clause 5D;*

Capital Expenditure $_{IABP}$ *is actual capital expenditure in 2009 and 2010 (determined in accordance with clauses 5I.2 to 5I.10) and capital expenditure for 2011;*

Depreciation $_{IABP}$ *is to be calculated on the Opening Metering Asset Base* $_{SD}$ *and actual capital expenditure in 2009 and 2010 (determined in accordance with clauses 5I.2 to 5I.10) and capital expenditure for 2011 using asset lives in accordance with clause 4.1(g); and*

Disposals $_{IABP}$ *is actual disposals in 2009 and 2010 and forecast disposals in 2011.*

5E.3 In determining the building block costs the Commission must:

(a) provide for the maintenance and operating expenditure in the Approved Budget for the subsequent AMI budget period (the balance of the Approved Budget being the capital expenditure for that year);

(b) provide a return on capital for 2012 and 2013 using a WACC calculated in accordance with clauses 4.1(h) and (i);

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

(d) for the purposes of calculating depreciation apply clause 4.1(g); and

(e) for the purposes of a benchmark allowance for corporate income tax, apply clauses 4.1(e) and (f).'

2.5 SP AusNet position on relevant issues

2.5.1 Scope

The Amending Order defines ***'scope'*** as:

'the scope of activities:

(a) set out in Schedule 2; or

(b) published pursuant to clause 14B.'

while Clause S2.6 of the Amending Order states:

'Activities within scope are those activities reasonably required:

(a) for the provision of Regulated Services; and

(b) to comply with a metering regulatory obligation or requirement.'

The Regulator is required to establish whether an activity is outside scope at the relevant time.

SP AusNet considers that the question of scope is determined by the need to undertake an activity, listed or otherwise in Schedule 2, in order to provide the Regulated Service or comply with a regulated metering obligation.

As has been acknowledged by Government and industry, AMI is a highly complex business and evolving technology based program with:

- new electronic meters providing the capability for measurement, remote control and data access and interfacing with future in-house display systems;
- communications networks capable of two-way data and control functionality in near real time;
- information and control systems to interface with and manage field infrastructure and in-house business IT systems for the purposes of remote reading and control, data management and transfer, customer services and customer transfer management for the purposes of facilitating retail competition in the marketplace.

Different approaches in terms of technology choice, resourcing and work program approach have been proposed as individual businesses tailor their programs to suit customer, business and environmental needs specific to its own situation. The AER acknowledged this difference in approach in its October 2009 determination[17] when accepting SP AusNet's two element metering and WiMAX solutions.

SP AusNet has previously supplied the AER with detailed information on its AMI solution. In section 3 of this Application SP AusNet has set out the activities which it considers necessary, and therefore within scope, for it to deliver the required Regulated Services and meet its regulated metering obligations, while in sections 4 and 5 respectively, an update on current progress and proposed future program activities is provided.

2.5.2 Prudent costs

The second test to be applied by the AER in considering a budget application is to establish that the expenditure for scope activities is not prudent. Clause 5C.3 states:

> *'For the purposes of Clause 5C2(b), expenditure is prudent and must be approved:*
>
> *(a) where that expenditure is a contract cost, unless the Commission establishes that the contract was not let in accordance with a competitive tender process, or*
>
> *(b) where that expenditure:*
>
> *i. is not a contract cost; or*
>
> *ii. is a contract cost and the Commission establishes that the contract was not let in accordance with a competitive tender process,*
>
> *unless the Commission establishes that:*
>
> *iii. it is more likely than not that the expenditure will not be incurred; or*
>
> *iv. the expenditure will be incurred but incurring the expenditure involves a substantial departure from the commercial standard that a reasonable business would exercise in the circumstances.'*

SP AusNet demonstrates in this Application that all expenditure costs included are within scope, prudent and will be incurred.

[17] AER, ***'Final Determination, Victorian AMI review, 2009-11 AMI budget and charges applications'***, page 6, Oct 2009.

2.5.3 Competitive tender process

Under clause 5.5a of the Amending Order SP AusNet is required to provide information on the competitive tender process and on page 3 of its Final Decision the AER states:

> *'In establishing whether a competitive tender process has taken place, as part of the prudency test, the AER will have regard to, amongst other things, the actual tender process documented, the process carried out by the distributors and the tender outcomes.'*

SP AusNet has a formal Competitive Tender process which is used in the external procurement of equipment and services. By the end of November 2010, the majority of contracts had been developed for the AMI Program using SP AusNet's procurement and contract management processes and policies. Copies of these procedures and policies have previously been provided to the AER. Table 2.1 summarises the AMI Program contracts entered to date. Copies of these contracts and a summary of the process undertaken in finalising these contracts have been provided to the AER[18].

Table 2.1 AMI Program Contracts

No	Contract or Tender Details	Vendor/ Supplier
1	RFP 2008/T49 Provision of XXX Solution Implementation Services	
2	RFQ 2008 AMI Design Services	
3	ITT 2008/T58 AMI Tender Management Services and AMI PMO	
4	RFQ 2009 AMI Customer Information System	
5	EAI System Integration Services	
6	RFQ 2009 AMI Customer Information System Integration Services	
7	RFT 2009/T04 Advanced Metering Infrastructure Production Network*	
8a	RFT 2009/T05 AMI Meter Installation Services*	
8b		
9a	RFI 2009/T15 AMI Metering Solution* (included within the contract is the MMS component A separate software and maintenance support agreement has been entered into)	
9b		

[18] SP AusNet , **'2009-2011 Revised Budget Application'**, February 2011

No	Contract or Tender Details	Vendor/ Supplier
10	RFQ 2009 Mobile Hardware Devices	
11	RFP 2009/T37 Provision of AMI System Integration Services for MMS and Communications Deployment	
12a	RFP 2009/T64 XXX GHz MDS B Band Spectrum License	
12b		
13	ITT 2010/T02 Supply & Delivery of WiMAX External Antennas for the AMI Communications Program*	
14	Purchase of Sun Enterprise Server equipment to support the implementation of the AMI IT Solution through Frontline	
15	POC435226 AMI Communications Network Infrastructure Security System - Supply And Services Agreement*	
16	AMIITSG XXX Maintenance -1st April 2009 to March 31st 2013	
17	XXX Engagement Professional Services for Release 1 and 1A of the AMI Program	
18	POC426310/D-DMS-00197 Field Mobile Inspection Solution	
19	Supply of 400,000 meter security seals	
20	POC 422629/D-ITA-00036 Hosting File Sharing Service XXX for AMI Program	
21	POC 436595/ D-GCN-00121 IT Consultancy Services Agreement - Services for Solution Architecture support for the SP AusNet AMI Program	
22	POC 435739/ D-DMS-00235 Field Services Agreement -	
23	POC 436169/ D-ITA-00045 Technical Architecture Services for AMI Program	

*Probity audits completed.

2.5.4 Contracts with related parties

On page 3 of its Final Decision the AER states:

'In respect of contracts with existing related parties, the AER will also examine the circumstances in which the contract was entered into.'

SP AusNet has previously provided to the AER details of the arrangements and contracts held with related parties as part of responses to the 2011-15 Electricity Distribution Price Review[19] and the recently lodged Revised Budget Application. For completeness, SP AusNet reiterates key aspects of those arrangements as they apply to the AMI Program in Section 4.7.

2.5.5 Risk Management Strategy

Clause 14A.1 requires that a distributor must have and keep up to date a risk management strategy in relation to the AMI program and make the strategy available should it be requested by the Minister. SP AusNet has a formal risk management program within the business and this program is being applied to AMI. SP AusNet's risk management approach was provided to the Minister in October 2009 as part of our response to the Minister's request.

2.5.6 Weighted Average Cost of Capital

For the period covered by this Application, two WACC values are to apply. The value for the initial AMI WACC period used in the initial AMI budget period will apply for the period 1 January 2012 to 31 December 2013. For the period 1 January 2014 to the End Date (31 December 2015), the subsequent AMI WACC period, the value of the WACC and the period that is to apply for the measurement of market observable parameters, will be determined in accordance with the requirements of clause 4.2(j) of the Amending Order.

For the purposes of this Application a value of WACC for the subsequent WACC period has been assumed and is discussed in Section 7.4.3.

19 SP AusNet, ***'EDPR 2011-15, Related Party Arrangements'***, November 2009 and SP AusNet, ***'EDPR 2011-15, Revised Related Party Arrangements'***, July 2010

3 Scope

In this section a high level overview of the scope of SP AusNet's AMI solution is provided; details of the AMI solution and the approach to its development and implementation have previously been provided to the AER in SP AusNet's various Pricing Proposals, Budget and Charges Applications. The relationship between the AER template categories, the scope activities under Schedule 2 of the Amending Order and the scope activities to deliver SP AusNet's AMI solution are mapped.

3.1 Introduction

The Amending Order defines 'scope' as:

> *'the scope of activities:*
>
> *(a) set out in Schedule 2; or*
>
> *(b) published pursuant to clause 14B.'*

while Clause S2.6 of the Amending Order states:

> *'Activities within scope are those activities reasonably required:*
>
> *(a) for the provision of Regulated Services; and*
>
> *(b) to comply with a metering regulatory obligation or requirement.'*

where ***'Regulated Services'*** are defines as:

> *'(a) metering services supplied to or on behalf of:*
>
> *(i) first tier customers; or*
>
> *(ii) second tier customers,*
>
> *with annual electricity consumption of 160 MWh or less where:*
>
> *(iii) the electricity consumption of that customer is (or is to be) measured using a revenue meter that is either an accumulation meter or a manually read interval meter; and*
>
> *(iv) the distributor is the responsible person in respect of those services; and*
>
> *(b) metering services supplied to or on behalf of:*
>
> *(i) first tier customers; or*
>
> *(ii) second tier customers,*
>
> *with annual electricity consumption of 160 MWh or less where:*
>
> *(iii) the electricity consumption of that customer is (or is to be) measured using a revenue meter that is a remotely read interval meter; and*
>
> *(iv) the distributor is the responsible person in respect of those services.'*

Further, clause S2.6 details a list of activities that are considered in scope in delivering the regulated services referred to above. Clause S2.7 sets out a list of activities that are considered outside scope pending related obligations while clause S2.8 identifies a list of activities that are considered outside scope.

3.2 Metering

Metering activities relate to the procurement, installation, salvage, operation and maintenance of the assets comprising the metering installation, including as appropriate measurement transformers, other associated equipment and AMI technology.

Metering and associated equipment is acquired through a competitive tender process. Table 3.1 below shows SP AusNet's revised forecast of new and replacement meter installation sites by meter configuration for the AMI program.

Table 3.1 New and replacement meter installation sites by meter configuration

Meter Configuration		New Connections				
	Number of meters at end of 2010	2011	2012	2013	2014	2015
Single phase single element	344,010	10,320	10,630	10,949	13,033	13,389
Single phase two element with contactor	170,390	1,704	1,721	1,738	0	0
Multiphase	76,123	1,522	1,553	1,584	1,616	1,648
Multiphase with contactor	43,084	35	35	35	36	36
Multiphase CT connected	3,711	56	56	57	58	59
Sub-Total	637,318	13,637	13,995	14,363	14,743	15,132
Combined Total	**709,188**					

SP AusNet's deployment of AMI meters is subject to a competitive tender process. The deployment of infrastructure is planned to meet the requirements of Schedule 1 of the Amending Order.

3.3 Meter reading and meter data services

3.3.1 Meter reading

Meter reading comprises back-office processes to add, delete or amend a customer installation to the reading route, route management, scheduling, uploading and downloading of reading information to reading devices and the task of reading meters.

Type 5 (manually read interval) and type 6 (accumulation) metering installations are read on site using Portable Data Entry (PDE) units to collect readings. Type 5 (AMI) metering installations are interval meters, read remotely.

Where communications infrastructure is not available, or the remote connection cannot be effected at the time of AMI meter installation, SP AusNet initially configures the installation based on the current meter installation type (Type 5 MIRM or Type 6 Basic). SP AusNet also undertakes check readings of installations for comparative purposes during early meter reading cycles.

The following activities are included in this program:

- Meter reading either remotely (AMI) or using manual resources (type 5 and 6 installations);
- Allowance for local comparative test reads in early cycles following AMI configuration to prove installation and accuracy of data;
- Provision of PDEs for test read purposes;
- PDE loading facilities and processes;
- Route scheduling and management;
- Manual reading or site visits associated with communications issues;
- Distributor initiated special reads; and
- Resourcing and training.

3.3.2 Meter data services

Meter data services comprise meter data processing and management and the transfer of processed meter data to retailers and market systems. The following activities are included in this program:

(a) **Data processing and management**

- Secure and maintain accreditation to read and process meter data for the relevant metering installation type;
- Estimation, validation and substitution of metering data in accordance with the metrology procedures for the relevant metering installation type;
- Exceptions management;
- Management of business rules applying to data management and exceptions;
- Data storage management to regulatory requirements;
- Hardware licensing and consumables;
- Software licensing and support; and
- Maintenance and support costs.

(b) **Data transfer**

- Management of transfer of AMI reading data to required service levels; and

- Management of AMI functionality in areas of control, security and messaging to required service levels not included in other activities above.

3.4 Communications

The implementation of AMI services requires the development, implementation, management and ongoing operation and support of a communication facility between individual customer installations and the SP AusNet's network infrastructure and information and control systems. SP AusNet sought the support and services of recognised subject matter experts to deliver an AMI solution in accordance with the requirements of the Functionality[20] and Service Level Specifications[21].

Key areas of the communications approach include the underlying coverage and capacity parameters and communications infrastructure. Discussion of the Network Management System (NMS) has been included in the Information and Control Services section 3.5.

3.4.1 Design parameters

SP AusNet's supply area is a mix of customer type, density and physical environment covering some 80,000 sq.kms. For initial design purposes a total customer base of 667,000 was assumed.

The AMI application has a low throughput, high volume connection requirement. Initial design coverage assumptions included:

- WiMAX will cover 82% of the total customer base;
- WiMAX boosted by Microcells will cover 3%; and
- 3G will cover 15%.

Validation of radio network design parameters and experience gained from implementations to date indicates that the coverage of WiMAX may be extended to a greater proportion of the customer base with secondary communication solution technology used to interface with the balance of customers.

While 3G technology remains its preferred secondary communications solution, SP AusNet is continuing to examine available options prior to selecting the cost effective, cost efficient solution(s) for affected customers. It is possible that the selected solution may have flow-on consequences in terms of meters and metering management systems. This matter is discussed further in section 5.3.3 of this Application.

3.4.2 Communications Deployment

Communications deployment includes the planning, design, civil works, installation, commissioning, acceptance testing and ongoing management and support of these systems and processes necessary to deliver the communications aspects associated with AMI. This includes the procurement of equipment and services, suitable sites for base stations and backhaul equipment (where necessary), radio and other licences and where necessary spares equipment.

Key activities in the design, development and commissioning of the communications infrastructure include:

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[20] DPI, ***'Advanced Metering Infrastructure Minimum State-wide Functionality Specification – release 1.1'***, September 2008.

[21] DPI, ***'Advanced Metering Infrastructure Minimum AMI Service Levels Specification – release 1.1'***, September 2008.

- Development of business, regulatory and other requirements relevant to the implementation of AMI, including preliminary testing;
- Design of a comprehensive solution architecture document that guides the project's operational implementation;
- Development of end to end process solutions for the detailed design phase;
- Detailed planning of location and site requirements for base stations;
- Site Acquisition and Site Design activities;
- Selection, data uploading and mapping of detailed design requirements by specific geographical areas using mapping tools;
- Planning, managing and auditing the field roll-out and commissioning of communications infrastructure;
- Civil works required to ready the selected site for base station installation;
- Base station installation, commissioning and acceptance testing;
- Core Network design, installation, commissioning and acceptance testing;
- Backhaul design, installation, commissioning and acceptance testing;
- Uploading configuration data to the NMS; and
- Establishment, resourcing (including training) and on-going operation of a 24/7 Network Operations Centre.

SP AusNet pursued an outsourced design and build and in-house operations approach to the communications aspects of AMI.

3.5 Information and Control Services

Information and control services comprise the NMS and Business System requirements.

3.5.1 Network Management System

The NMS provides an interface between different environments which constitute the overall information system, comprising the field environment of meters and communications infrastructure and SP AusNet's back-office environment.

SP AusNet has pursued an outsourced design and build and in-house operations approach to NMS. It has developed a NMS architecture based on system models deployed within the carrier and telecommunications sector and commissioned a detailed architecture design covering the MMS and CNMS subsystem components and their interaction with other business systems.

Based on the architectural model, SP AusNet's design, build and operate process includes:

- Planning and requirements analysis;
- Hardware installation and testing;
- Design and development;
- Testing;
- Training;

- Live traffic cut-over;
- Post cut-over support;
- Network Operations;
- Network Maintenance; and
- Technical Support.

3.5.2 Business Systems

The implementation of AMI with increased meter data volumes and functional complexity has a direct impact on a distributor's IT and back office systems. SP AusNet was required to develop a number of systems to deliver the required functionality and service level performance required and to meet ongoing business needs.

SP AusNet adopted a strategic long-term solution approach to meet its needs and obligations. This approach has been detailed in section 3.4 of both the initial Pricing Proposal[22] and the revised Pricing Proposal[23]. While an overall approach has been the basis for developing a business systems solution, only that portion of the costs incurred that are directly attributable to AMI have been included in applications made under the provisions of the Amending Order.

Key activities to delivering individual systems and an integrated overall approach include:

- Understanding the business environment (business and regulatory)
- Development of a business information systems strategy
- Development of an IT management and a supply strategy
- Business approvals.
- For individual new and amended systems:
    - Development of the system requirements;
    - Development of the software specification;
    - Development of business process and change requirements;
    - Establishment of the environment (hardware, operating systems, location, etc);
    - Build, procurement and test;
    - Testing (Integration, system and user acceptance testing);
    - Implementation and training; and
    - Documentation.

In recognition of the complexity of the AMI IT program to be delivered, SP AusNet assessed that it needed to resource additional project management and change management capability and moved to purchase commercial products rather than in-house customising, thus matching business processes to the product rather than the product to business processes.

22 SP AusNet, ***'Advanced Metering Infrastructure Pricing Proposal'***, December 2007.

23 SP AusNet, ***'Advanced Metering Infrastructure Revised Pricing Proposal'***, September 2008.

3.5.3 Information Technology capital cost allocation model

SP AusNet has developed a cost allocation model which enables it to allocate only those aspects of its information technology capital expenditure which are specific to addressing AMI requirements to the AMI Program.

The model 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 AMI requirements; and
- **Other Allocation:** Applied to projects with no costs or have an inherent business logic to justify the cost allocation.

3.6 Customer services

SP AusNet's approach to Customer Services activities relating to the AMI program is focussed on:

- The development of a Customer Communications and Service Strategy to educate and inform customers about AMI;
- Development of complementary plans to provide detail on delivery, technology, training and resourcing with all stakeholders;
- Development and planning of resourcing and training requirements for Customer Services teams and call centre functions to deal with customer queries, complaints and claims; and
- Upgrading of the relevant Customer Service technology (e.g. Interactive Voice Recording) to ensure effective and efficient management and handling of customer calls.

3.7 Project management and training

Program Management and Training covers a range of activities required to implement the AMI Program. The areas within the AMI Program include Solution, Deployment and Operation streams for Metering and Communications Infrastructure.

Activities include:

- Project administration;
- Project coordination (Issues and Risks);
- Financial management and Reporting Requirements; and
- Resourcing, training and Change Management.

3.8 Summary mapping

In Tables 3.2 and 3.3 below, SP AusNet has mapped the relationship between the AER template categories, the scope activities under Schedule 2 of the Amending Order and the scope activities set out above in this section.

Table 3.2 Operating & Maintenance Expenditure – Scope Relationship Map

Information Technology

Template Category	Schedule 2 Reference	SP AusNet Reference
1. Functional Technology Response per Functional Element (excludes hardware & 'platform' software)		
(a) Asset Management	s.2.6(b)(1)(iii), s.2.6(b)(2) (vii)(A)(1)	**3.5**
(b) Workforce Scheduling & Mobility	s.2.6(b)(1)(iii), s.2.6(b)(2)(vii)(A)(2)	**3.5**
(c) Connection Point Management	s.2.6(b)(1)(ii), s.2.6(b)(2)(vii)(C)(1)	**3.5**
(d) Outage Management	s.2.6(b)(1)(ii), s.2.6(b)(2)(vii)(B)(2)	**3.5**
(e) Network Management	s.2.6(b)(1)(ii), s.2.6(b)(2)(iv)(B)(1)	**3.5**
(f) Meter Data Management	s.2.6(b)(1)(ii), s.2.6(b)(2)(vii)(C)	**3.5**
(g) Performance & Regulatory Reporting	s.2.6(b)(1)(ii)(iii), s.2.6(b)(2)(vii)(C)(2)	**3.5**
(h) Revenue Management	s.2.6(b)(1)(ii), s.2.6(b)(2)(vii)(C)(1)	**3.5**
(i) Geospatial Information	s.2.6(b)(1)(ii)(iii), s.2.6(b)(2)(vii)(E)	**3.5**
(j) Program Support		
1(j)(i) Program Management & Architecture	s.2.6(b)(1)(ii)(iii), s.2.6(b)(2)(xi)	**3.5**
1(j)(ii) Testing	s.2.6(b)(1)(ii)(iii), s.2.6(b)(2)(xi)	**3.5**

Template Category	Schedule 2 Reference	SP AusNet Reference
1(j)(iii) Change Management	s.2.6(b)(1)(ii)(iii), s.2.6(b)(2)(xi)	**3.5**
1(j)(iv) Release Management	s.2.6(b)(1)(ii)(iii), s.2.6(b)(2)(xi)	**3.5**

Template Category	Schedule 2 Reference	SP AusNet Reference
2. IT Infrastructure (incl middleware, B2B & B2M) 'Platform' software is not specific to a single functional element - it supports multiple elements		
2.1 Hardware	s.2.6(b)(1)(ii), s.2.6(b)(2)(vii)	**3.5**
2.2 'Platform' software licences & maintenance	s.2.6(b)(1)(ii), s.2.6(b)(2)(vii)	**3.5**
2.3 Hardware support & 'platform' software support	s.2.6(b)(1)(ii), s.2.6(b)(2)(vii)	**3.5**
2.4 System integration / software customisation	s.2.6(b)(1)(ii)(iii), s.2.6(b)(2)(vii)	**3.5**
2.5 Other (please specify)	s.2.6(b)(1)(ii)(iii), s.2.6(b)(2)(vii)	**3.5**

Non-Information Technology

Template Category	Schedule 2 Reference	SP AusNet Ref
1. Other Metering & Communication Costs		
a) Meter reading	S2.6(a)(ii), S2.6(b)(1)(i),(ii), (viii),(ix),(x)	**3.3**
b) Meter data management	S2.6(a)(ii), S2.6(b)(1)(i),(b), (2)(i)(B)	**3.3**
c) Meter maintenance	S2.6(a)(ii), S2.6(b)(1)(i)	**3.2**
d) Customer service	S2.6(b)(2)(iii)	**3.6**
e) Backhaul communications	S2.6(b)(2)(iv)(B)(1)	**3.4**
g) Communication Infrastructure Maintenance	S2.6(b)(1)(i)	**3.4**
2. **Project & Administrative Costs**		
a) Technology trials	S2.6(b)(2)(iv)	**3.7**
b) Customer response trials	S2.6(b)(2)(vi)	**3.7**
c) Project management	S2.6(b)(2)(xi), S2.6(b)(2)(x)	**3.7**
d) Training	S2.6(b)(2)(x)	**3.7**
f) AMIPO & AMI ISC costs	S2.6(b)(2)(xi)(A)	**3.7**
g) Audit & quality assurance	S2.6(b)(2)(xi)(D)	**3.7**
h) AMI budget & charges applications	S2.6(b)(2)(xi)(G)	**3.7**
i) Legal costs	S2.6(b)(2)(xi)(G)	**3.7**
j) Equity raising costs	S2.6(b)(2)(xii)	**3.7**
k) Finance & administration incl. treasury	S2.6(b)(2)(xii)	**3.7**
l) Management or overhead costs	S2.6(b)(2)(xiii)	**3.7**

Table 3.3 Capital Expenditure – Scope Relationship Map

Information Technology

Template Category	Schedule 2 Reference	SP AusNet Reference
1. Functional Technology Response per Functional Element (excludes hardware & 'platform' software)		
(a) Asset Management	s.2.6(b)(1)(iii), s.2.6(b)(2)(vii)(A)(1)	**3.5**
(b) Workforce Scheduling & Mobility	s.2.6(b)(1)(iii), s.2.6(b)(2)(vii)(A)(2)	**3.5**
(c) Connection Point Management	s.2.6(b)(1)(ii), s.2.6(b)(2)(vii)(C)(1)	**3.5**
(d) Outage Management	s.2.6(b)(1)(ii), s.2.6(b)(2)(vii)(B)(2)	**3.5**
(e) Network Management	s.2.6(b)(1)(ii), s.2.6(b)(2)(iv)(B)(1)	**3.5**
(f) Meter Data Management	s.2.6(b)(1)(ii), s.2.6(b)(2)(vii)(C)	**3.5**
(g) Performance & Regulatory Reporting	s.2.6(b)(1)(ii)(iii), s.2.6(b)(2)(vii)(C)(2)	**3.5**
(h) Revenue Management	s.2.6(b)(1)(ii), s.2.6(b)(2)(vii)(C)(1)	**3.5**
(i) Geospatial Information	s.2.6(b)(1)(ii)(iii), s.2.6(b)(2)(vii)(E)	**3.5**
(j) Program Support		
1(j)(i) Program Management & Architecture	s.2.6(b)(1)(ii)(iii), s.2.6(b)(2)(xi)	**3.5**
1(j)(ii) Testing	s.2.6(b)(1)(ii)(iii), s.2.6(b)(2)(xi)	**3.5**
1(j)(iii) Change Management	s.2.6(b)(1)(ii)(iii), s.2.6(b)(2)(xi)	**3.5**
1(j)(iv) Release Management	s.2.6(b)(1)(ii)(iii), s.2.6(b)(2)(xi)	**3.5**

Template Category	Schedule 2 Reference	SP AusNet Reference
2. IT Infrastructure (incl middleware, B2B & B2M) 'Platform' software is not specific to a single functional element - it supports multiple elements		
2.1 Hardware	s.2.6(b)(1)(ii), s.2.6(b)(2)(vii)	**3.5**
2.2 'Platform' software licences & maintenance	s.2.6(b)(1)(ii), s.2.6(b)(2)(vii)	**3.5**
2.3 Hardware support & 'platform' software support	s.2.6(b)(1)(ii), s.2.6(b)(2)(vii)	**3.5**
2.4 System integration / software customisation	s.2.6(b)(1)(ii)(iii), s.2.6(b)(2)(vii)	**3.5**
2.5 Other (please specify)	s.2.6(b)(1)(ii)(iii), s.2.6(b)(2)(vii)	**3.5**

Non-Information Technology

Template Category	Schedule 2 Reference	SP AusNet Reference
1. Metering & Communications Equipment Purchase		
a) Meters	S2.6(a)(i), S2.6(b)(1)(i)	**3.2**
c) WAN	S2.6(b)(2)(iv)(B)(1)	**3.5.1**
e) Communication Infrastructure	S2.6(b)(1)(i), S2.6(b)(2)(i)(A)	**3.4**
2. AMI Installation Services		
a) Meters	S2.6(b)(1)(i), S2.6(b)(2)(i)(A)	**3.2**
c) WAN	S2.6(b)(1)(i)	**3.5.1**
e) Communication Infrastructure	S2.6(b)(1)(i), S2.6(b)(2)(i)	**3.4**

4 AMI Program Update (2009-2011)

SP AusNet's AMI program has continued to develop and evolve since commencement of the program in January 2009. Much of the initial period was spent finalising the AMI solution, detailed project planning, the engagement of project resources and undertaking tender processes which ultimately led to the signing of a number of contracts in the last quarter of 2009. Despite a level of push-back from some customers impacting the roll-out of meters, and uncertainty surrounding the Government's position with respect to the implementation of AMI and tariff matters, SP AusNet has achieved a significant level of progress in implementing its AMI solution. Implementation works commenced in earnest in 2010 and have continued to expand.

The following sections provide a summary of the key activities and their status as at the time of this Application. Separately, SP AusNet has provided to the AER a Revised Budget Application for the initial AMI budget period which sets out in detail the program changes and associated budget impacts for the capital aspects of the program as they have and are forecast to occur in this initial period.

4.1 Metering

Metering activities relate to the procurement, installation, salvage, operation and maintenance of the assets comprising the metering installation, including as appropriate measurement transformers, other associated equipment and AMI technology.

4.1.1 Contracts

Since lodging its Initial Budget application, SP AusNet had entered into contracts with:

- Vendors for the supply of meters;
- The supply of WiMAX external antennas; and
- The supply of metering installation services.

4.1.2 Installation numbers

SP AusNet's Initial Budget Application had assumed that the rollout of AMI type meters for both replacement and new connections would commence in 2010. However, due to insufficient meters being received from the suppliers, SP AusNet continued installing accumulation and non - AMI interval meters to new customers.

SP AusNet's planned approach to the smooth rollout of AMI meters was based on replacing meters along complete meter reading routes. Higher than expected 'push-back' from customers to the program has impacted on the effectiveness of this strategy.

Actual meter roll-out numbers for 2010 are compared with the Approved Budget quantity in Table 4.1 below.

Table 4.1 Quantity of meters in 2010

	Year 2010	
Meter types	**Planned**	**Actual**
Replacement		
Single phase single element	33,586	71,878
Single phase, two element with contactor	17,027	-
Multiphase	7,452	-
Multiphase, direct connected with contactor	5,300	-
Multiphase Current Transformer connected	221	-
	63,586	71,878
New connections		
Single phase single element	7,389	-
Single phase, two element with contactor	3,742	-
Multiphase	2,363	-
Multiphase, direct connected with contactor	259	-
Multiphase Current Transformer connected	32	-
Total	**77,371**	**71,878**

Revised forecast meter roll-out numbers for 2011 are compared with the Approved Budget quantity in Table 4.2 below.

Table 4.2 Quantity of meters in 2011

	Year 2011	
Meter types	**Planned**	**Revised**
Replacement		
Single phase single element	109,153	132,483
Single phase, two element with contactor	55,336	43,999
Multiphase	24,220	38,188
Multiphase, direct connected with contactor	17,226	3,683
Multiphase Current Transformer connected	718	-
	206,653	218,353
New connections		
Single phase single element	7,551	10,320
Single phase, two element with contactor	3,825	1,704
Multiphase	2,415	1,522
Multiphase, direct connected with contactor	271	35
Multiphase Current Transformer connected	33	56
	14,095	13,637
Total	**220,748**	**231,990**

4.1.3 Meter and metering installation costs

Actual and forecast meter costs in the initial AMI Budget Period have varied from those in the Approved Budget due to:

- different meter costs per unit than forecast ;
- transfer of the antenna costs previously budgeted as part of the communications asset to the meter asset; and
- changes in the quantity and types of meters rolled out.

A detailed explanation of these cost variations has been provided in SP AusNet's Revised Budget Application. SP AusNet's actual and forecast meter and metering installation costs for the period to 31 December 2011 are set out in the templates accompanying this application.

4.2 Meter reading and meter data services

4.2.1 Meter Reading

Meter reading comprises back-office processes to add, delete or amend a customer installation to the reading route, route management, scheduling, uploading and downloading of reading information to reading devices and the task of reading meters.

Type 5 (manually read interval) and type 6 (accumulation) metering installations are read on site using Portable Data Entry (PDE) units to collect readings. Type 5 (AMI) metering installations are interval meters, read remotely.

Where communications infrastructure is not available, or the remote connection cannot be effected at the time of AMI meter installation, SP AusNet initially configures the installation based on the current meter installation type (Type 5 MIRM or type 6 Basic).

During the period, SP AusNet has experienced a higher level of manual reads than initially forecast due to:

- the continued use of accumulation and non-AMI meters for new connections in 2010;
- the need to validate remote data to manual reads; and
- the inability to retire entire meter reading routes due:
    i. to the reluctance of some customers to grant access or participate in the rollout at this time;
    ii. the lack of AMI capable meter types for some instances including multiphase meters; and
    iii. the later than forecast delivery of IT systems which has delayed logical exchange compared with forecast.

Redundancies arising from the remote reading are not expected to commence before 2012.

Direct costs associated with meter reading have trended to the Approved Budget, however a transfer of indirect costs previously reported under ‘Management or overhead costs’ has resulted in an increase in total direct and indirect costs.

SP AusNet’s actual and forecast meter reading costs for the period to 31 December 2011 are set out in the templates accompanying this application.

4.2.2 Meter Data Services

Meter data services comprise meter data processing and management and the transfer of processed meter data to retailers and market systems.

During 2010, SP AusNet transitioned meter data services functions previously provided by a meter data services provider.

The development of new systems and processes and their interfacing to other existing systems and processes within the business has seen a higher than anticipated level of exceptions requiring significant manual input to ensure that business, market and regulatory requirements in respect of meter data services continue to be met.

Key areas of concern that have required additional temporary resourcing include:

(a) Metering related service order processing

While these functions were already performed in-house, the higher level of exceptions being experienced as a result of the interfacing of new and existing systems has required additional resourcing. It is expected that this additional resourcing will be phased out during 2011.

(b) Implausible meter reads

Implausible meter read[24] exceptions have increased materially during the transition phase. The previous contract provided for a 5% level of read exceptions, however SP AusNet is currently experiencing a level of read exceptions of 10-15%.

Problems with historical data transferred from the existing meter data services database and a difference in interpretation of business rules, systems are seen to be the key drivers for the level of error exceptions. SP AusNet expects that these issues will be reduced as more current data delivered over the next couple of meter reading cycles enters the system.

(c) Interval meter data

SP AusNet has applied a small number of additional resources to manage the transition of manually read interval data associated with type 5 meter installations to in-house systems. These resources are expected to be released shortly as fewer than expected issues have arisen.

(d) CATS compliance

The National Electricity Market CATS procedures determine how a range of areas including standing data, meter readings and meter data, transfers and scheduled reading dates are to be managed and the service levels that are to be met.

Implementation issues associated with the establishment of the new and enhanced systems and processes and the transition of existing functionality in-house have required SP AusNet to engage additional manual resources to ensure that it continues to meet its regulatory obligations in the provision of meter data services. The maintenance of data stream information, matching and processing of transfer and associated meter readings and the updating and publishing of next scheduled read date information are some of the CATS procedures affected. The level of CATS manual intervention is also impacted by the flow-on effect of error exceptions referred to in (a)-(c) above.

In 2011, the focus will be on 'bedding down' systems and new processes to ensure business needs and regulatory requirements are fully functional and compliant.

During 2011, SP AusNet is required to undertake 'logical conversion' of installed manually read type 5 and type 6 meters to manually read type 5 (AMI) meters and update that information in both the SP AusNet and AEMO market systems. While this is expected to be mainly an automated process, a level of resourcing will be required to test, establish and manage the process. SP AusNet believes it is prudent to allow additional resourcing to manage and fix errors and exceptions that arise as part of the conversion.

Direct costs associated with meter data services are forecast to exceed the Approved Budget due to the increase in AMI meter numbers that are being deployed, the need to continue meter reading validation testing and the additional resourcing requirements that have been referred to above. As with meter reading, a transfer of indirect costs previously reported under 'Management costs or overhead' has resulted in an increase in total direct and indirect costs.

[24] Implausible meter read is a meter reading outside the present validation rules of the system.

SP AusNet's actual and forecast meter data services costs for the period to 31 December 2011 are set out in the templates accompanying this application.

4.3 Communications

The implementation of AMI services requires the development, implementation, management and ongoing operation and support of a communication facility between individual customer installations and SP AusNet's network infrastructure and information and control systems. Key areas of the communications approach include the underlying coverage and capacity parameters and communications infrastructure.

4.3.1 Design

SP AusNet's AMI solution is based on WiMAX technology, a standards-based wireless broadband technology, supported by 3G technology in areas where WiMAX proves not to be a practical, cost-effective solution.

SP AusNet's Initial Budget Application had assumed that WiMAX (including infill technologies) would serve around 85% of customers. Validation of radio network design parameters and experience gained from the deployment to date indicates that the coverage of WiMAX may be extended to a greater proportion of the customer base (in excess of 88%) with secondary communication solution technology used to interface with the balance of customers.

While 3G technology remains its preferred secondary communications solution, SP AusNet is continuing to examine available options prior to selecting the cost effective, cost efficient solution(s) for affected customers. It is possible that the selected solution(s) may have flow-on consequences in terms of meters and metering management systems.

4.3.2 Infrastructure

(a) Contracts

SP AusNet has entered into a contract for the provision of its WiMAX infrastructure. The WiMAX infrastructure contract was the subject of a formal competitive tender process and has been subjected to a probity audit.

(b) Installation numbers

SP AusNet commenced the installation of the WiMAX infrastructure in late 2009, with the first of the sites being brought into operation in early 2010. It had been previously expected that 6 base stations would be in operation by the end of 2009, however due to various reasons this did not occur. Table 4.3 below shows the comparison of budgeted and forecast WiMAX base stations to be installed in the initial budget period.

Table 4.3 Comparison of WiMAX base stations

No. of Towers	2009		2010		2011		TOTAL	
	Planned	Actual	Planned	Actual	Planned	Planned	Planned	Actual / Planned
WiMAX base stations	6	-	11	11	33	26*	50	37

***** *Detailed plans for 9 base stations by June 2011*

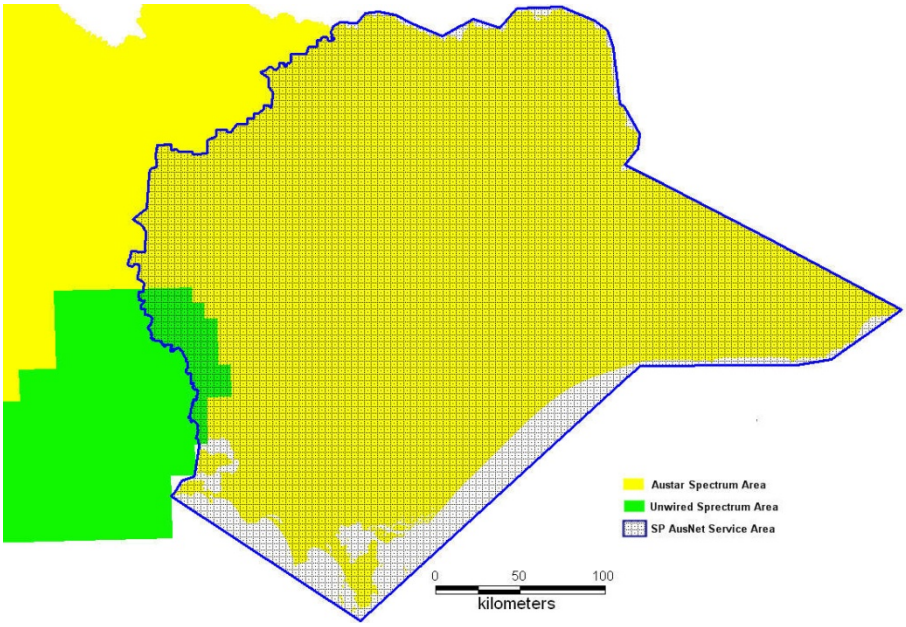
4.3.3 Spectrum

The WiMAX network to be deployed utilizes the XX GHz licensed spectrum band. The spectrum ownership across SP AusNet's distribution functions have been established with spectrum licence holders until 2015. The current agreement also covers options and behaviours for the subsequent period after the spectrum renewal period.

The SP AusNet service boundary covers both Metropolitan and Country areas. An arbitrary division roughly indicates a meter distribution of 59%: 41% ratio between Metro and Country respectively.

The amount of spectrum required is largely dictated by the density of meters which in turn impacts performance concurrency and the ability to meet the AMI Service Level Specification KPIs. The WiMAX network is designed to cater for the current meter fleet and expected expansion over the course of the program.

Figure 4.1 Spectrum Boundary in SP AusNet area



Where the WiMAX network utilises Spectrum Licences, the backhaul network uses spectrum provided for by Apparatus Licences. The primary function of the backhaul network is to provide

network and data connectivity to the WiMAX sites. Where possible, SP AusNet will utilise current communications infrastructure assets. The backhaul network is largely proportionate to the size of the WiMAX network and hence will increase with the number of base stations.

The design of the backhaul network is generally more sensitive to site location as it depends on line-of-sight to establish a network connection. Terrain and local factors can often affect network design.

Apparatus Licence pricing is largely fixed by the Australian Communications and Media Authority (ACMA). Pricing scenarios are dictated by Frequency, Channel Bandwidth and location (High Density or Low Density). Any subsequent budget variations will be dictated either by increased WiMAX sites or the failure to acquire sites in the designed location.

4.3.4 Network Security

Concurrent to the deployment of WiMAX communications equipment, SP AusNet has invested heavily in the security of the AMI network infrastructure.

Security has been a key focus area for the AMI Program and has recently concluded its Communications Infrastructure Security project which developed capability in relation to firewalls and Intrusion Detection Prevention Systems. This capability is currently in production and is working as per the requirements of the AMI Program.

4.3.5 Communications costs

Initial experience with the installation of base stations has shown that the costs of each site vary heavily depending on the site specifics, with only material costs remaining similar across sites. Build, planning and labour costs, which form the bulk of the cost of the WiMAX infrastructure, vary considerably on a site by site basis. Costing estimation for base stations is continually revised based on findings from current or previous builds. The project and associated costing is now broken into phases which are more detailed as compared to the high level planning performed for the initial Approved Budget. Each phase was initially designed to provide coverage to sufficient quantities of meters to meet the Amending Order mandated milestones. Phase 1 build activity concluded in June 2010 and Phase 2 is expected to run from July 2010 to around June 2011.

SP AusNet's actual and forecast communications costs for the period to 31 December 2011 are set out in the templates accompanying this application.

4.4 Information and Control Services

Information and control services comprise the NMS and Business System requirements where:

- the NMS (comprising the Meter Management System (MMS) and Communications Network Management System (CNMS)) provides an interface between different environments which constitute the overall information system, and
- the business systems deliver the required functionality and service level performance and to meet ongoing business needs.

SP AusNet's budgeted IT capital expenditure in the Approved Budget was primarily based on delivering the final IT solution in two stages. Stage one was to be implemented in November 2009 and stage two was to be implemented in April 2010. The resolution of SP AusNet's final IT solution and hence, signing of contracts affected the interface with the preferred suppliers for some of the IT components and subsequently caused a shift in the program's IT timeline with the major portion of SP AusNet's IT infrastructure deployed at the end of 2010.

4.4.1 Network Management System

(a) Meter Management System (MMS)

The MMS received conditional accreditation from the AEMO in 2010, enabling SP AusNet to participate in the national market as a meter data provider. SP AusNet is currently testing a second release which is expected to deliver around 90% of business and AMI requirements. A further release to deliver 100% of requirements is schedule for 2011.

(b) Communication Network Management System (CNMS)

The CNMS encapsulates all network operational support systems required to manage the selected WiMAX network and other AMI Communications infrastructure. The system and associated functions have been defined using the enhanced Telecom Operations Map (eTOM) in addition to the functionality derived from the ISO Telecommunications Management Network FCAPS (Fault, Configuration, Accounting, Performance, and Security) model. The CNMS is programmed for delivery in 2011.

Whilst delivering on AMI requirements SP AusNet also must keep up to date with its obligations in the National Electricity Market (NEM) and currently there are scheduled changes for a new B2B tariff notification transaction to be operational and effective by November 2011.

4.4.2 Business systems

Implementation of AMI, the increased meter and data volumes and functional complexity impact a distributor's Information Technology (IT) and back office systems. SP AusNet has required new IT systems and changes to existing IT systems as part of the AMI solution.

Core IT systems developed include:

(a) Meter Data Management System (MDMS)

The MDMS has been deployed in the AMI production environment and provides core meter and consumption data management including:

- Meter Register Management;
- Meter Event Management and Reporting;
- Meter Configuration Management;
- Raw Meter Data Storage and Archiving;
- Meter Message Management;
- Receiving Meter Reads;
- Validating Meter Reads;
- Storing Meter Reads;
- Substituting Reads; and
- Delivering Meter Read Data.

(b) Customer Information System (CIS)

The CIS has been deployed in the AMI production environment and provides the capability to deliver:

- Connection Point Management;
- Service Order Management;
- Services billing;
- Meter asset management;
- Service Request management;
- CATS Transaction Processing;
- NEM B2B Transaction Processing;
- Type 6 Meter Configuration and manually read type 5;
- Consumption Data Management; and
- Route and Read Management.

4.4.3 Information and control services costs

SP AusNet's actual and forecast information and control services costs for the period to 31 December 2011 are set out in the templates accompanying this application.

4.5 Customer Services

Customer Services activities associated with the AMI program are focussed on the development and implementation of Customer Communications and Service strategies, the development of training and resources and the upgrading of relevant customer services technologies.

In April 2009, the Industry Steering Committee introduced new processes associated with the resolution of Level 1 and 2 defects based on the estimated volume of defects expected. SP AusNet has experienced a higher than expected volume of Level 1 and 2 defects than those used as the basis for industry procedures requiring greater resourcing in the initial year of the AMI meter roll out. It is expected that this level will continue to increase during 2011, given the higher public profile of the program and impacts from the Victorian Governments review of the program

SP AusNet's actual and forecast customer service costs for the period to 31 December 2011 are set out in the templates accompanying this application.

4.6 Project Management and Training

The role of Program Management within large scale projects such as AMI is to serve as a controlling mechanism across the program requirements, working with all streams to ensure that all program control processes, including risks, issues, changes, resources etc. are dynamically managed across all of the projects in line with the AMI Program Structure, Methodology and Governance framework.

The AMI Program in SP AusNet is a significantly more complex project than originally forecast, particularly in light of the pioneering technology being deployed, the number of systems and processes affected and the infrastructure deployment challenges being encountered. As the complexity evolved, the management of the program required ongoing changes to the structure and resourcing to ensure objectives continue to be achieved. Areas to be managed included application delivery, meter and communications infrastructure deployment, business change and transition, variation control process, stage-gating and phase management, budget and cost

management, schedule management, stakeholder identification and communication, technical quality management, program risk and issues management, program/stream status reporting, program assurance and probity audit, etc.

Original expectations of the Program Management function did not anticipate the need for a stream lead structure and the number of support roles now identified. Table 4.4 below provides a summary of key achievements and objectives for the 2010-2011 period, while Table 4.5 provides a comparison of the number of employees forecast to be required in the Project Management Office (PMO) in 2010 and 2011 as against the assumptions made in the Approved Budget

Table 4.4 Key Achievements/Objectives for 2010-2011

Stream	Key Achievements/Objectives for 2010-2011
Solution	▪ Design and implementation of a Requirements Management Framework ▪ Definition of AMI Business Functional Model ▪ Definition of Release Capability Statement for each Capability release ▪ Definition of AMI Security Architecture ▪ Definition of AMI Disaster Recovery and High Availability Architecture ▪ Definition of required AMI Regulatory and Compliance Reporting capability ▪ Definition of AMI Technical Architecture (excl. Secondary Communications Network) ▪ Definition of Secondary Network Communications Strategy
Meters	▪ DPI Dec 2010 meter deployment target met. ▪ On track to meet DPI June 2011 target. ▪ Meter procurement strategy for 2H 2011 finalised (to be endorsed)
Application Delivery	▪ Implementation of AMI Data Warehouse and regulatory reporting. ▪ Stabilise AMI applications and MDP operations ▪ Upgrade of Meter Management System ▪ Support Logical Conversion process ▪ Conduct Performance Tuning of production environment to meet min DPI specification (6am delivery of data to the market)
Communications	▪ Design WiMAX network and build initial WiMAX Radio network ▪ Installed Communications Infrastructure - including required number of base stations ▪ Design, build, commission and migrate to core MPLS network ▪ Design, build, commission and implement Communications Security Infrastructure

Stream	Key Achievements/Objectives for 2010-2011
Testing	▪ Successfully complete testing (SIT – System Integration and UAT - User Acceptance Testing) of the following solution components for deployment onto the production platform with no severity 1 or 2 defects outstanding. – MMS v2.3 – Two Element Meter Testing – AMI Capability Transitions functionality – Daily Data Delivery & Monthly Billing. – Remote Service Order capabilities (Re-Energise, De-energise and Re-configuration) – MMS v2.4 – CNMS – Security – Meters – Comms Cards
Operations	▪ Support 10 basestations and 70,000 end-point devices ▪ Implementation of Event Management Process ▪ Implementation of Incident Management Process ▪ Implementation of Change Management process ▪ Implementation of Configuration Management process ▪ Implementation of Access Control process ▪ Implementation of IPS systems and processes ▪ Resourcing of Network Monitoring capability ▪ Implementation of interim Operational Support Systems ▪ Interim Support Model signed off

Stream	Key Achievements/Objectives for 2010-2011
Business Transformation	▪ Successfully transitioned the business such that they were ready to support the new and changed business processes and applications (Customer Information System , Meter Data Management System , Meter Management System - MMS) in order to manage the new functionality of AMI (interval meter data etc) ▪ Select DMS were successfully accredited as the MDP for Type 5-7 Meters as well as the MPB for Type 5-7. ▪ Developed all customer collateral such as customer letters, customer exchange wallets, notification cards etc. ▪ Stakeholder management to various external stakeholders on the impact of the AMI Program.
PMO – General, Finance, Industry	▪ Development of effective Program and governance structure including Program Reporting at all levels ▪ Development of Program High Level Schedules ▪ Develop Project Management Plans (PMP) ▪ Implementation of Change Request process and authority board ▪ Implementation of Vendor Management Model ▪ Implementation of Contracts Database and KPI Reporting ▪ Ongoing and continued relationship management of key vendors ▪ Development of procurement strategy ▪ Quality Management audits and reporting – internal and external ▪ Undertaken program wide quality control and assurance to ensure adherence to standards ▪ Maintaining a deliverables register and a dependencies register ▪ Development of key templates used throughout the program ▪ Stakeholder management to Market Participants through the Victorian AMI Program Office working groups ▪ Obtained agreement from all impacted Market Participants to proceed with high impact systems cutover

Table 4.5 Number of Employees in the PMO

Number of employees	2010		2011	
	Planned	Actual	Planned	Forecast
Solution				
Meter & Communications				
Testing				
Operations				
Business Transformation				
PMO - General				
PMO - Industry				
PMO - Finance				
Total				

As SP AusNet ramps up the roll-out of the AMI meters it is forecast that there will be an increase in employees in the Operations stream, however this is expected to be offset by a decrease in numbers in the Solution, Testing and Business Transformation streams.

Post 30 June 2011, it is forecast that there will be a reduction in the number of employees in the PMO as the AMI meters would have been fully tested for possible defects (and been rectified), IT solutions will have been in production for almost 12 months and most business change and transition issues would have been addressed.

SP AusNet's actual and forecast program management and training costs for the period to 31 December 2011 are set out in the templates accompanying this application.

4.7 Management and Indirect Overhead Costs (Related Parties)

4.7.1 Introduction

As noted in section 2.5.4 of this Application, SP AusNet has previously provided to the AER details of the arrangements and contracts held with related parties. For completeness, SP AusNet reiterates key aspect of those arrangements as they relate to the Management Services Agreement (MSA) with SPI Management Services Pty Ltd (SPIMS) and its application to the AMI Program.

4.7.2 Background of Contract

SPIMS has entered into a Management Services Agreement (MSA) with SP Australia Networks (Transmission) Ltd and SP Australia Networks (Distribution) Ltd on 1 October 2005. This agreement is for an initial period of ten years but continues for two further ten year periods unless terminated by either party giving no less than one year's notice prior to the expiry of the applicable ten year period.

4.7.3 Breakdown of Services and Costs

SPIMS' employees provide management and administration services to the SP AusNet Stapled Group's electricity transmission and electricity and gas distribution entities. Therefore, the management services charges are allocated amongst the regulated distribution business via the Activity Based Costing (ABC) allocation methodology.

4.7.4 SP AusNet's Indirect Overhead Costs

In accordance with the Cost Allocation Methodology (CAM) SP AusNet allocates many of its costs that are directly attributable to the AMI Program and has a small residual amount for some cost centres which the SP AusNet ABC survey results are applied to. This results in the allocation to the AMI program of Overheads. As the AMI Program winds down, costs associated with the SPIMS contract are expected to decrease.

SP AusNet's actual and forecast management and indirect overhead costs and their allocation for the period to 31 December 2011 are set out in the templates accompanying this application.

5 SP AusNet's AMI Program Future Initiatives (2012-2015)

During the forthcoming subsequent AMI budget period, SP AusNet proposes to continue with the rollout of AMI meters to eligible existing and new connection customers and to complete the development and deployment of communications infrastructure and information and control services to ensure the delivery of AMI related regulated metering services to the functionality, service levels and timeframes specified under the Amending Order.

5.1 Metering

5.1.1 Contracts

AMI electronic interval meters are required to meet the functionality and service level requirements set out in the relevant specifications as well as other National Electricity Market metrology requirements.

The majority of meter supply volumes and functionality will remain unchanged from that previously put forward however SP AusNet is currently reconsidering its meter sourcing strategy to include an additional metering supplier. The primary purpose of this occurring is to create competitive tension between incumbent metering suppliers and ensure meter supply requirements are met.

5.1.2 Installation Numbers

Schedule 1 of the Amending Order sets out the number of remotely read interval meters that are to be installed by the end of a period. Clause 5.5(b) of the Amending Order requires SP AusNet to provide the number of metering installations that are proposed to be installed. For the period 2012-2015 covered by this Application the periods and numbers are shown below in Table 5.1.

Table 5.1: Rollout requirements

Period ending on	Forecast quantity of meters to be installed in each period
31 December 2012	340,715
31st December 2013	58,668

SP AusNet's deployment of AMI meters is subject to a competitive tender process. The deployment of infrastructure is planned to meet the requirements of Schedule 1 of the Amending Order.

Table 5.2 Quantity of meters by type in this subsequent budget period

Meter Configuration	Roll-out[25]		New Connections[26]	
	2012	2013	2014	2015
Single phase single element	50,999	12,609	13,033	13,389
Single phase two element with contactor	217,749	33,659	0	0
Multiphase	33,662	7,410	1,616	1,648
Multiphase with contactor	34,575	4,896	36	36
Multiphase CT connected	3,730	94	58	59
Sub-Total	**340,715**	**58,668**	**14,742**	**15,131**

5.1.3 Metering and metering installation costs

As described in section 4.1.3 and SP AusNet's Revised Budget Application, February 2010 the revised costs for meters and installation will be used to forecast the costs associated with meters installed in 2012-2013. This will apply to all meters that are contained within the primary WiMAX communication network.

For meters outside the primary network, SP AusNet has included the cost of a 3G enabled meter to be used within the secondary communications network. Refer to section 5.3.3 for additional detail on the secondary communications network. It is anticipated that the cost of installing a 3G enabled meter should not vary to a WiMAX meter.

SP AusNet's forecast meter and metering installation costs for the period to 31 December 2015 are set out in the templates accompanying this application.

[25] Roll-out includes replacement and new connections

[26] Number of 'new AMI connections' expected. At this point in time it would be anticipated that the roll-out/replacement of meters would have concluded.

5.2 Meter reading and meter data services

5.2.1 Meter Reading

As described in section 4.2.1 a higher number of manual reads where required however in the subsequent budget period it is expected that a core benefit of AMI, that is, remotely reading interval meters will be realised.

SP AusNet anticipates that the number of 'difficult sites' will reduce in the subsequent budget period and whole manual meter reading routes will be removed. Manual meter reads will end after two cycles from the installation of an interval meter. All manual meter reads are proposed to end in June 2014.

Meter reading costs are expected to trend down in this subsequent budget period hence delivering expected benefits of the AMI Program and core Amending Order requirements. SP AusNet's actual and forecast meter reading costs for the period to 31 December 2015 are set out in the templates accompanying this application.

5.2.2 Meter Data Services

Although the functions associated with meter data services where designed to be fully automated, some manual intervention or workarounds may be required to ensure business process are executed to the required levels of service performance and timeframes.

After 'bedding down' the systems in 2011 SP AusNet anticipates that the level of read exceptions in 2012 and beyond should reduce to the expected level of 5% with resources required to support any manual intervention also reducing to the expected base level.

The aim for the subsequent budget period will be to enable a fully automated meter management capability with minimal manual interventions. This should be achieved by refining relevant business process and minimising the level of exceptions in core meter data management applications.

Benefits should be passed onto consumers due to the reduction in manual intervention required to perform meter data services.

SP AusNet's forecast meter reading and meter data management costs for the period to 31 December 2015 are set out in the templates accompanying this application.

5.3 Communications

5.3.1 Design

As previously stated SP AusNet's supply area is a mix of customer type, density and physical environment covering some 80,000 sq.kms. A four phased approach has been adopted to deploy the AMI communications infrastructure.

Table 5.3 Primary Communications Network Radio Plan

Delivery Phase	Coverage (Target)	Coverage (Achieved)	Cumulative Sites (RFP[27])	Cumulative Sites (Current[28])	Delivery Date
Phase 1	12%	12.92%	5	5	June 2010
Phase 2	40%	40.52%	16	20	June 2011
Phase 3	70%	70.44%	41	49	Sep 2012
Phase 4	85%	84.69%	59	89	July 2013

Table 5.4 Primary Communications Network Deployment Plan per calendar year

Year	Site Count
2009	0
2010	11
2011	26
2012	35
2013	17
Total	**89**

SP AusNet is currently investigating the overall coverage associated with the primary WiMAX network. Preliminary findings suggest the overall coverage of 84.69% will be increased with the use of micro infrastructure and infill strategies (Refer to section 5.3.3 for additional information relating to the secondary network and infill strategies)

[27] Cumulative site count was based on estimate during the procurement phase of the Communications contract prior to a detailed network design

[28] Cumulative site count based on current network design plans and current at the time of producing this submission

5.3.2 Wide Area Network (WAN - Backhaul)

SP AusNet has selected to deploy a Multi-Protocol Label Switching (MPLS) as its preferred WAN backhaul technology. The initial network deployment of MPLS concluded in December 2010 and that included the implementation of the main core routers and migration of some of the key WiMAX hubs to MPLS.

The WAN is being built over 4 phases, to align with the WiMAX rollout (as per Table 5.3) and our primary communications provider has delivered this initial implementation and it is live in production as of December 2010.

The next instalment of MPLS essentially builds on the core capability delivered in December 2010 and is likely to commence in April 2011 and is due for completion by mid 2013.

5.3.3 Secondary Communications Network and Infill

The SP AusNet AMI program has to date performed various studies into the options for providing communications capability for 100% of the meter fleet. These studies, performed over the last 3 to 4 years, have taken a view of defining a primary communications medium for accommodating a volume deployment, a secondary solution, and a set of infill technologies that provide a gap fill for anomaly sites.

The SP AusNet AMI program has developed a detailed understanding of the input factors required to solve the mandated requirements, and analysed a set of solutions that would achieve a capability in-line with key dates.

The WiMAX solution selected as the primary network continues to be the most suitable communications solution and, based on current analysis, provides coverage greater than initially expected (88.77% up from 85%). The specific breakdown of WiMAX infill technologies include: micro sites and repeater stations in coverage black spots (exclusive 1.16%), localised LAN based solutions to cover group metered sites (inclusive 6.84%), alternative antenna arrangements to provide for meters in fringe areas (inclusive 2.93%).

A secondary network solution provided by a 3G network is currently under assessment and is planned to provide coverage outside the primary network (approximately 10%). Work with product vendors to develop meter communication capabilities and integration into the primary network continues. SP AusNet has provided initial forecast estimates for the secondary network within this budget application however these will be revised once detailed quotes are provided by product vendors.

A small portion of the meters are expected to fall outside the current strategy (approximately 0.86% or around 6000 meters). SP AusNet continues to assess the feasibility of providing a contingency and fail safe solution for these meters since the estimated costs are significantly higher than the main population of meters. The templates attached to this submission include the costs of replacing the 0.86% with an interval meter that would be manually read. SP AusNet does not believe it is practical or economically efficient to convert these meters to remotely read interval meters but possibly a new technology may emerge at a later date.

SP AusNet's forecast capital and operating costs for its WiMAX, Infill and 3G (Secondary Solution) for the period to 31 December 2015 are set out in the templates accompanying this application.

5.4 Information and Control Services

5.4.1 Network Management System (NMS)

SP AusNet has based its overall NMS design on two systems – a Meter Management System (MMS) and a Communications Network Management System (CNMS).

Meter Management System (MMS)

It is expected that the final release of the MMS including HAN functionality will conclude in June 2011. During the subsequent budget period the MMS for the primary WiMAX network will be in an operations and maintenance phase.

The AMI Program is conducting detailed planning for the MMS associated with the secondary network to either extend or append MMS capability.

A decision on the available options will be considered in line with the Secondary Communications design. At this stage the assessment for the MMS as well as impacts on upstream systems to support the secondary solutions is still within a feasibility phase.

Communications NMS (CNMS)

The AMI CNMS encapsulates all network operational support systems required to manage the selected WiMAX network and other AMI Communications infrastructure. The CNMS will be maintained and updated accordingly to ensure the SP AusNet Network Operations Centre can effectively manage communication faults and proactively manage the primary communications environment. Minor upgrades to the CNMS are included in the forecast expenditure detailed in the templates accompanying this submission.

5.4.2 Business Systems

To ensure the successful delivery of the SP AusNet Business Systems component of the AMI Program, EB Services[29] have been engaged by SP AusNet as the prime Systems Integration delivery partner for the program. EB Services will organise the delivery of the Business System components of the AMI Business Systems program utilising a Service Delivery capability, inclusive of, utilising Delivery Partners, SP AusNet Business, SP AusNet IT, EB Services resources and Hardware and Software Vendors.

The implementation of AMI, including the increased data volumes and functional complexity impact a distributor's Information Technology (IT) and back office systems. SP AusNet requires diligent effort to ensure its core AMI business systems are regularly maintained and upgraded to support AMI.

Meter Data Management System (MDMS)

The MDMS has been deployed in the AMI production environment and will be in an operations and maintenance phase during the subsequent budget period.

Customer Information System (CIS)

The CIS has been deployed in the AMI production environment and will be in an operations and maintenance phase during the subsequent budget period.

Enterprise Application Integration (EAI)

[29] Additional information on the AMI IT service provider agreement can be found within the SPA '**Revised Budget Application'**, February 2011 and SPA ***'EDPR Related Party Arrangements'***, November 2009

The EAI has been deployed in the SP AusNet production environment and has been supporting AMI with the transfer of messages to the market. This system will be monitored closely to ensure volume demands are met.

Data Warehousing

To manage the additional volumes of interval data associated with AMI, a data warehousing capability is currently being developed to progress functionality associated with data analysis and reporting. SP AusNet has initiated a program of work to develop capability with particular focus on:

- Reporting (Regulatory);
- Data Storage;
- Data Cubes;
- Data Processing; and
- End User/Regulatory Analysis.

In addition to core data warehousing capability supporting functions will be required to provide work instructions and training for any revised business processes.

Each of the business systems listed above will require relevant IT infrastructure (servers, databases, etc) and application support (testing, development, etc) to support the additional storage and processing required for approximately 680,000 meters. The forecast costs associated with IT infrastructure and application delivery/support are included in the templates accompanying this submission.

5.5 Customer services

5.5.1 Customer Complaints

Based on SP AusNet's experience in the AMI meter roll out it is likely that the number of complaints and queries will increase customer service costs. The trend will progressively continue as the rollout continues and adverse media is received on the Program.

In April 2009, the Industry Steering Committee introduced new processes associated with the resolution of Level 1 and 2 defects based on the estimated volume of defects expected. SP AusNet has experienced a higher than expected volume of Level 1 and 2 defects than those used as the basis for industry procedures, causing an increase in the resource effort associated with resolving defects.

Based on the high profile and adverse media focus on the AMI program, SP AusNet will require additional resource effort to support customer queries, manage difficult sites, provide additional communications and liaise with the government and industry groups to manage consumer concerns.

Table 5.5 Customer service costs

($'000, Real 2011)

	2012 (Forecast)	2013 (Forecast)	2014 (Forecast)	2015 (Forecast)
Customer Queries Handling	939	133	133	33
Customer Complaints Handling	1,592	251	251	63
Customer Claims Handling	580	131	131	33
Training and telephone hand sets	81	11	11	3
Total	**3,191**	**525**	**525**	**131**

5.6 Project Management and Training

5.6.1 Program Management Office (PMO)

The AMI Program will require ongoing program governance and management through both the implementation of infrastructure to 2013 and services to 2015. The governance structures role is to ensure the AMI obligations from an end-to-end solution and delivery perspective are maintained whilst relative functional components are managed through the business as usual (BAU) structure. In addition to transferring into BAU new roles where appropriate will be created within the business.

The structure is to ensure as ongoing infrastructure is implemented and functionality introduced service continuity and performance is maintained and controlled. Table 5.6 highlights the key achievements and objectives of the AMI PMO.

Table 5.6 Key Objectives of the PMO

Stream	Key Objectives for 2012-2015
Solution	▪ Requirements Management ▪ Integration of the Secondary Network Communications and Infill solution into the overall AMI solution ▪ Change Request assessment and solution definition (as required) ▪ Provide solution governance for the end to end AMI solution
Meters	▪ Develop meter procurement strategy for 2012 - 2015. ▪ In conjunction with Communications Team develop detailed schedule to ensure all areas within SP Network included in meter deployment activity, with view to attaining DPI targets for June 12, June 13 & Dec 13
Application Delivery	▪ Ensure operations and maintenance of AMI business systems whilst minimising running costs ▪ Develop archiving strategy to cope with increased volumes of data ▪ Build data warehouse capability to manage interval data
Communications	▪ Expand WiMAX network and build additional sites as required to meet DPI targets ▪ Design and expand WAN network ▪ Introduce additional "infill" solutions – WiMAX, Microcells, Repeaters etc
Testing	▪ Successfully complete testing (SIT – System Integration and UAT - User Acceptance Testing) of the following solution components for deployment onto the production platform with no severity 1 or 2 defects outstanding. – Infill Solution – Secondary Communications Network – Solution components listed in Year 10/11 not delivered to Testing Governance Group for testing will be carried over 2012.

Stream	Key Objectives for 2012-2015
Operations[30]	▪ Support Capability of 60+ basestations, microcells, repeaters and 2nd tier (infill) solution for 800,000 end-point devices to the DPI,AEMO, et.al Service Level Requirements ▪ 24/7 support to support network in the critical 12midnight to 2am timeframe and weekends. (resources to ensure 2 staff are available 24/7) ▪ Service Catalogue signed off ▪ 24/7 technical escalation of faults ▪ Remote alarming of Critical alarms ▪ Performance monitoring and Reporting capability to be implemented and brought to final state. ▪ Implementation of Availability Management processes ▪ Implementation of Capacity Management processes ▪ Implementation of Demand Management processes ▪ Maintain Disaster Recovery Plans and provide scheduled tests and training. ▪ RF and Network Optimising initiatives to meet urban growth or new infrastructure. Maintain and document work instructions on maintenance of all current hardware and software configuration.
Business Transformation	▪ Transition the AMI Operations team into the Information, Communications and Technology (ICT) business unit. ▪ Transition into the business for all outstanding applications and functionality yet to be delivered as part of our AMI solution, such as Data Warehousing. This will involve developing business processes, work instructions and training. ▪ Continue to provide support for the processes that were under "warranty" from earlier releases. ▪ Determine and execute the plan to deliver the AMI Minimum Service Levels for 2012. ▪ Identify all outstanding AMI functionality that is to be transitioned to the business and develop the plan to ensure this is executed appropriately.

[30] The AMI Operations team will be transitioned into the ICT business and all associated estimates have been reflected under IT Operating Expenditure

Stream	Key Objectives for 2012-2015
PMO – General, Finance, Industry	▪ Program Monitoring & Controls ▪ Program Governance ▪ Program and Project Support ▪ Commercial Management ▪ Vendor and Contracts Management ▪ Project Management as required ▪ Dependency Management ▪ Liaise with Financial Management Team to ensure: ▪ Risk and Issue Management ▪ Change Control / Variation Management ▪ Stakeholder Management ▪ Quality Control ▪ Health and Safety

5.6.2 Resource Numbers

Table 5.7 Number of employees in the PMO

Number of employees	2012 (Forecast)	2013 (Forecast)	2014 (Forecast)	2015 (Forecast)
Solution Meter & Communications Testing Operations Business Transformation PMO				
Total				

The average cost per employee has increased from previous years due to a number of factors including market demand and specialist skill sets required to support the Program.

SP AusNet and the AMI program have adapted a rigorous process to ensure that all resource costs are aligned to HR benchmarking conducted within the business. For each job description developed within the AMI Program the corporate HR team propose a relevant salary band.

As the AMI program winds down SP AusNet will identify high performing individuals to transfer into the business or otherwise transition off the Program

Table 5.8 Monthly average cost per employee

Monthly average cost per employee	2012 (Forecast)	2013 (Forecast)	2014 (Forecast)	2015 (Forecast)
Solution				
Meter & Communications				
Testing				
Operations				
Business Transformation				
PMO - General				

5.7 Management and Indirect Overhead Costs (Related Parties)

As noted in section 4.7 of this application, SP AusNet Stapled group has a Management Services Agreement with SPIMS for the provision of management and administration services.

5.7.1 Summary of Management and Overheads Costs

SP AusNet anticipates the effort and time associated with SPIMS will be reduced resulting in costs being allocated on other networks.

Table 5.9 Breakdown of Management and Overheads Costs

($'000, Real 2011)

Category / Year	2012 (Forecast)	2013 (Forecast)	2014 (Forecast)	2015 (Forecast)
Management Costs (SPIMS) Indirect Overhead Costs (SP AusNet)				
Total Management and Overheads Costs				

5.7.2 Equity and Debt Raising Costs

In the subsequent budget period and consistent with business requirements SP AusNet will need to raise additional equity or renegotiate debt to fund the AMI program.

SP AusNet anticipates that it will fund its capital expenditure program via a combination of operating cash flows, debt and equity. SP AusNet introduced a Distribution Reinvestment Scheme (DRP) in October 2008, and the scheme has operated at each distribution to date. SP AusNet may continue to raise additional equity via its DRP for the period 2012-15.

SP AusNet aims to raise the bulk of its debt finance via the domestic and international bond markets, rather than the bank debt markets. The rationale for this is that bond markets provide longer terms and accessing these markets preserves spare capacity in the bank debt markets, that can be used in the event that bond markets are effectively closed or prohibitively expensive.

SP AusNet's equity and debt raising costs for the subsequent period are set out in the templates accompanying this application.

6 Budget Application

The Amending Order requires that a budget application sets out the Total Operating and Capital expenditure for each year of a budget period to deliver the Regulated Services required. SP AusNet's forecast expenditure requirements for the subsequent budget period are summarised below. Details of the forecast expenditure requirements are set out in the templates provided with this Application.

The budget set out in this section has been defined by following a robust process and in close collaboration with relevant subject matter experts from the AMI Program team and business personnel.

Since the initial budget application SP AusNet has entered into formal contract arrangements for the deployment of its AMI Solution and expenditure is based on either current contracted estimates or forecasts based on historical data.

6.1 Total Operating and Capital Expenditure

SP AusNet's forecast Total AMI Expenditure is summarised in Table 6.1 below.

Table 6.1 Total Regulated Services Expenditure

($,000, Real 2011)

Total AMI Expenditure	2009 (Actual)	2010 (Forecast[31])	2011 (Forecast)	**2012 (Forecast)**	**2013 (Forecast)**	**2014 (Forecast)**	**2015 (Forecast)**
Total AMI Operating Expenditure (incl IT)	28,241	40,505	50,488	48,549	40,149	26,441	24,352
Total AMI Capital Expenditure (incl IT)	40,170	91,987	122,954	171,025	49,081	7,367	3,999
Total Regulated Services Expenditure (incl IT)	**68,411**	**132,492**	**173,442**	**219,575**	**89,231**	**33,808**	**28,352**

31 Consistent with the ***DRAFT*** 2010 Regulatory accounts due to be lodged with the AER on 30th April 2011.

6.2 Operating and Maintenance Expenditure

Operating and maintenance expenditure comprises:

- Periodic meter testing based on meter family samples in accordance with relevant standards and asset management programs;
- Fault response and maintenance of the meter stock, metering data services and communications platforms;
- Customer service costs associated with queries, complaints and claims handling as a result of meter replacements;
- Costs associated with providing meter data services, including meter reading, data transfer to an IT system, managing data and providing it to market participants and AEMO;
- Costs associated with:
    - Hardware licensing, service level agreements and consumables for systems backup;
    - Software licensing, service level agreements, vendor support and maintenance; and
    - Labour for maintenance and support activities, systems and data backups for meter data services, storage systems, networks and support for service level agreements for hardware and software.
- Costs incurred and forecast to be incurred in conducting technology trials of the secondary communications network and infill strategies
- SP AusNet Management Costs;
- Information, Communications and Technology (ICT)
    - Communications Backhaul;
    - Communications Network Maintenance; and
    - IT service provider support.
- Project management, training and other preparation costs; and
- Indirect costs.

6.2.1 IT Operating Expenditure

SP AusNet's forecast AMI IT Operating Expenditure is summarised in Table 6.2 below.

Table 6.2 Regulated Services IT Operating Expenditure

($,000, Real 2011)

AMI IT Operating Expenditure	2009 (Actual)	2010 (Forecast[32])	2011 (Forecast)	**2012 (Forecast)**	**2013 (Forecast)**	**2014 (Forecast)**	**2015 (Forecast)**
Functional Technology Response	924	2,524	5,668	8,549	8,344	8,828	8,861
IT Infrastructure (incl middleware, B2B & B2M)	522	1,341	5,789	6,196	4,691	4,691	4,691
Total IT Operating Expenditure	**1,446**	**3,864**	**11,457**	**14,745**	**13,035**	**13,519**	**13,552**

32 Consistent with the ***DRAFT*** 2010 Regulatory accounts due to be lodged with the AER on 30th April 2011.

6.2.2 Operating Expenditure (excl. IT)

SP AusNet's forecast AMI Operating Expenditure (excl. IT) is summarised in Table 6.3 below.

Table 6.3 Operating Expenditure (excl. IT)

($,000, Real 2011)

AMI Operating Expenditure (excl IT)	2009 (Actual)	2010 (Forecast[33])	2011 (Forecast)	**2012 (Forecast)**	**2013 (Forecast)**	**2014 (Forecast)**	**2015 (Forecast)**
Metering & communications equipment purchase	-	-	-	-	-	-	-
AMI installation services	-	-	-	-	-	-	-
Other metering & communications costs	10,641	12,598	14,101	15,626	11,914	8,854	8,505
Project and administrative costs	16,154	24,043	24,931	18,179	15,200	4,068	2,295
Total Operating Expenditure (excl IT)	**26,795**	**36,641**	**39,032**	**33,804**	**27,114**	**12,922**	**10,800**

33 Consistent with the ***DRAFT*** 2010 Regulatory accounts due to be lodged with the AER on 30th April 2011.

6.3 Capital Expenditure

Capital expenditure comprises:

- Costs for meter supply, installation and site re-visit costs;
- Continuation of the deployment of the primary communications network;
- Design and installation of the secondary communications infrastructure and network; and
- Capital costs associated with providing meter data services, including meter reading, data transfer to an IT system, managing data and providing it to market participants and AEMO.

6.3.1 IT Capital Expenditure

SP AusNet's forecast AMI IT Capital Expenditure is summarised in Table 6.4 below.

Table 6.4 IT Capital Expenditure

($,000, Real 2011)

AMI IT Capital Expenditure	2009 (Actual)	2010 (Forecast[34])	2011 (Forecast)	**2012 (Forecast)**	**2013 (Forecast)**	**2014 (Forecast)**	**2015 (Forecast)**
Functional Technology Response	17,947	34,314	7,257	7,229	3,381	-	-
IT Infrastructure (incl middleware, B2B & B2M)	9,590	5,596	5,550	3,533	3,533	-	-
Total T Capital Expenditure	**27,537**	**39,910**	**12,806**	**10,761**	**6,914**	**-**	**-**

[34] Consistent with the ***DRAFT*** 2010 Regulatory accounts due to be lodged with the AER on 30th April 2011.

6.3.2 Capital Expenditure (excl. IT)

SP AusNet's forecast AMI Capital Expenditure (excl. IT) is summarised in Table 6.5 below.

Table 6.5 Regulated Services Capital Expenditure (excl. IT)

($,000, Real 2011)

AMI Capital Expenditure (excl IT)	2009 (Actual)	2010 (Forecast[35])	2011 (Forecast)	**2012 (Forecast)**	**2013 (Forecast)**	**2014 (Forecast)**	**2015 (Forecast)**
Metering & communications equipment purchase	12,193	41,190	80,301	113,483	27,563	5,417	3,894
AMI installation services	440	10,188	29,846	46,781	14,604	1,950	105
Other metering & communications costs	-	-	-	-	-	-	-
Project and administrative costs	-	699	-	-	-	-	-
Total Regulated Services Capital Expenditure (excl IT)	**12,633**	**52,077**	**110,147**	**160,264**	**42,167**	**7,367**	**3,999**

35 Consistent with the ***DRAFT*** 2010 Regulatory accounts due to be lodged with the AER on 30th April 2011.

7 Subsequent Charges Determination

7.1 Recoverable Expenditure

7.1.1 Introduction

As noted previously, the Amended Order provides for a building block methodology to be used in establishing the charges for regulated metering services, 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,

For this 2012-2015 initial charges application, the building blocks under clause 5E require that the AER must:

> *(a) provide for the maintenance and operating expenditure in the Approved Budget for the subsequent AMI budget period (the balance of the Approved Budget being the capital expenditure for that year);*
>
> *(b) provide a return on capital for 2012 and 2013 using a WACC calculated in accordance with clauses 4.1(h) and (i);*
>
> *(c) provide a return on capital for 2014 and 2015 using a WACC calculated in accordance with clause 4.1(j);*
>
> *(d) for the purposes of calculating depreciation apply clause 4.1(g); and*
>
> *(e) for the purposes of a benchmark allowance for corporate income tax, apply clauses 4.1(e) and (f).*'

7.2 Operating and maintenance expenditure

7.2.1 Introduction

Operating and maintenance expenditure is considered to comprise the costs of activities reasonably required for the provision of regulated metering services under the Amending Order and to comply with a metering regulatory obligation or requirement. Table 3.2 in section 3 of this application details the operating and maintenance activities considered within scope for the delivery of regulated metering services and compliance with metering regulatory obligations or requirements.

7.2.2 Operating and maintenance expenditure (2012-2015)

SP AusNet's forecast AMI operating and maintenance expenditure for the subsequent AMI budget period 2012-2015 is summarised in Table 7.1 below.

Table 7.1 Operating and maintenance expenditure (2012-2015)

($m, Real 2011)

	2012 (Forecast)	2013 (Forecast)	2014 (Forecast)	2015 (Forecast)	Total
AMI Operating and maintenance expenditure	48.55	40.15	26.44	24.35	139.49

7.3 Capital expenditure

7.3.1 Introduction

Capital expenditure is considered to comprise the costs of activities reasonably required for the provision of regulated metering services under the Amending Order and to comply with a metering regulatory obligation or requirement. Table 3.3 in section 3 of this application details the capital expenditure activities considered within scope for the delivery of regulated metering services and compliance with metering regulatory obligations or requirements.

7.3.2 Total capital expenditure (2012 - 2015)

SP AusNet's forecast AMI capital expenditure for the subsequent AMI budget period 2012-2015 is summarised in Table 7.2 below.

Table 7.2 Capital Expenditure (2012-2015)

($m, Real 2011)

	2012 (Forecast)	2013 (Forecast)	2014 (Forecast)	2015 (Forecast)	Total
AMI Capital expenditure	171.03	49.08	7.37	4.00	231.47

7.4 Cost of capital financing

The cost of capital financing comprises a return on capital (weighted average cost of capital or WACC) to be applied to the Regulatory Asset Base and a return of capital allowance (depreciation).

7.4.1 Opening metering regulatory asset base (1 January 2012)

Clause 5E.2 requires that the opening value for the metering RAB at the Start Date of 1 January 2012 is to calculated as follows, adjusting for inflation:

$$\text{Opening Metering Asset Base}_{2012} = \text{Opening Metering Asset Base}_{2006} + \text{Capital Expenditure}_{SD} - \text{Depreciation}_{1ABP} - \text{Disposals}_{1ABP}$$

Where:

Opening Metering Asset Base$_{2012}$ *is the opening metering asset base at the start of 2012;*

Opening Metering Asset Base$_{SD}$ *is the opening metering asset base for 2009 as calculated under clause 5D;*

Capital Expenditure$_{1ABP}$ *is actual capital expenditure in 2009 and 2010 (determined in accordance with clauses 5I.2 to 5I.10) and capital expenditure for 2011;*

Depreciation$_{1ABP}$ *is to be calculated on the Opening Metering Asset Base$_{SD}$ and the actual capital expenditure in 2009 and 2010 (determined in accordance with clauses 5I.2 to 5I.10) and capital expenditure for 2011using asset lives in accordance with clause 4.1(g); and*

Disposals$_{1ABP}$ *is actual disposals in 2009 and 2010 and forecast disposals in 2011.*

SP AusNet's calculation of the Metering Asset Base value is shown in Table 7.3.

Table 7.3 Calculation of Metering Asset Base value (2009-2011)

($m, Real 2011)

	Metering Asset Base		
	2009 (Actual)	**2010 (Actual)**	**2011 (Forecast)**
Opening (1 Jan)	38.85	68.32	140.11
Capital Exp.	40.17	91.99	122.95
Depreciation	(10.70)	(20.20)	(31.41)
Disposals	0.00	0.00	0.00
Closing (31 Dec)	**68.32**	**140.11**	**231.65**

7.4.2 Forecast metering asset base (2012-2015)

SP AusNet's calculation of the metering asset base opening values for each year for the period 2012-2015 is set out in Table 7.4 below.

Table 7.4 Metering Asset Base Value Forecast (2012-2015)

($m, Real 2011)

	Metering Asset Base			
	2012 (Forecast)	**2013 (Forecast)**	**2014 (Forecast)**	**2015 (Forecast)**
Opening (1 Jan)	231.65	359.26	355.35	317.19
Capital Expenditure.	171.03	49.08	7.37	4.00
Depreciation	(43.41)	(53.00)	(45.53)	(44.75)
Disposals	0.00	0.00	0.00	0.00
Closing (31 Dec)	**359.26**	**355.35**	**317.19**	**276.44**

7.4.3 Cost of Capital and estimated cost of corporate taxation

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 Amending 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:

> *(b) provide a return on capital for 2012 and 2013 using a WACC calculated in accordance with clauses 4.1(h) and (i);*
>
> *(c) provide a return on capital for 2014 and 2015 using a WACC calculated in accordance with clause 4.1(j);*

Clauses 4.1(h) and (i) state:

> *'(h) The debt raising cost for the initial AMI WACC period shall be taken to be 12.5 basis points. Equity raising costs for the initial AMI WACC period shall be recovered as a maintenance and operating expense.*
>
> *Note: Equity raising costs incurred before the Start Date are covered by clause 4.1(h).*
>
> *(i) The input parameters used to calculate the WACC for the initial AMI WACC period must be calculated:*
>
> *(i) with measurement of the market observables to occur on:*

(A) the last 10 business days of November 2008; and

(B) the first 5 business days of December 2008,

with the market observables to be determined on the basis of that measurement and otherwise in accordance with the Statement of Regulatory Intent issued by the AER pursuant to clause 6.5.4 of the National Electricity Rules; and

(ii) using the non-market observables from the Current Price Determination.'

The initial AMI WACC Period is defined as the period commencing on the Start Date and ending 31 December 2013, while 'market observables' are defined as the nominal risk free rate and debt risk premium.

Clause 4.1(j) states:

'(j) The input parameters used to calculate the WACC for the subsequent AMI WACC period must be calculated with:

(i) measurement of the market observables to occur in a period in 2013 proposed by the distributor and agreed by the Commission (such agreement not to be unreasonably withheld); and

(ii) market observables and non-market observables determined in accordance with the Statement of Regulatory Intent issued by the AER pursuant to clause 6.5.4 of the National Electricity Rules and as if clause 6.5.4(g) of the National Electricity Rules applied.'

The subsequent AMI WACC Period is defined as the period commencing 1 January 2014 and ending on the End Date.

The WACC for the initial AMI WACC period was determined as part of the AER's October 2009 Budget and Charges Determination and parameters set are shown in Table 7.5 below.

As the criteria required for setting the input parameters for the calculation of the WACC for the subsequent AMI WACC period have yet to be finalised, for the purposes of this Application SP AusNet has assumed as a place holder:

- market observables consistent with the initial WACC Period; and
- non-market observables consistent with the initial Statement of Regulatory Intent issued by the AER in May 2009.

This approach is consistent with that outlined by the AER in February 2011.[36]

With regards to the estimated cost of corporate tax, SP AusNet has assumed a gamma of 0.2. The gamma is not an input into the WACC and, therefore, the proposed gamma is not applicable to the subsequent AMI WACC period but rather the entire 2012-15 subsequent AMI budget period.

[36] Letter from AER to Ms Buckland, section titled, ***AMI WACC for 2014-15***, dated 15 February 2011.

Table 7.5 below shows the input parameters for both WACC and the estimated cost of corporate tax for the initial and subsequent AMI WACC periods.

Table 7.5 WACC – Capital Asset Pricing Model parameters

Parameter	Initial	Subsequent	
	2009 – 2011	2012 - 2013	2014 - 2015
Real risk free rate	2.02%	2.02%	2.02%
Inflation	2.56%	2.56%	2.56%
Debt margin	4.13%	4.13%	4.13%
Gearing	60.0%	60.0%	60.0%
Equity beta	1.0	0.8	0.8
Market risk premium	6.0%	6.5%	6.5%
Gamma	-	-	0.2
Real cost of debt	6.04%	6.04%	6.04%
After tax real cost of equity	7.87%	7.87%	7.09%
Real post-tax WACC	**6.77%**	**6.77%**	**6.46%**

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

Table 7.6 Return on Capital Expenditure

($m, Real 2011)

	2012 (Forecast)	2013 (Forecast)	2014 (Forecast)	2015 (Forecast)	Total
Return on Capital Expenditure	20.01	24.20	21.72	19.17	**85.10**

7.5 Regulatory depreciation

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.

Clause 5E.3(d) requires that clause 4.1(g) be applied for the purposes of calculating depreciation.

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.

Table 7.7 sets out SP AusNet's total depreciation attributable to Regulated Services for the subsequent budget period.

Table 7.7 Depreciation (2012-2015)

($m, Real 2011)

	2012 (Forecast)	2013 (Forecast)	2014 (Forecast)	2015 (Forecast)	Total
Depreciation	43.41	53.00	45.53	44.75	**186.69**

7.6 Revenue Requirement

7.6.1 Introduction

In part, the purpose of the Amending Order is to:

> *"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".*[37]

While the Amending Order is focussed on the setting of prices, fees and charges for the period post the Start date of 1 January 2009, prices, fees and charges, together with expenditure requirements for the period 1 January 2006 to the Start Date are also relevant in determining prices, fees and charges for 2010 and beyond.

7.6.2 Revenue requirement (2012-2015)

Clause 4.1(o) requires that for the period from 1 January 2012 to the End Date, charges are to be determined such that the net present value of total Regulated Services costs is equal to the net present value of revenue earned, 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).'*

[37] Government Gazette No S314, ***'AMI Order in Council, 2008'***, Part A, Clause 1A.(a).

Clause 4.1(k) of the Amending 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."*
>
> *(ii) Where actual revenue is not available, by multiplying (as the case may be):*
>
> *(A) in the case of the year commencing 1 January 2009, the charges of a distributor determined pursuant to clause 5J;*
>
> *(B) in the case of every subsequent year,*
>
> > *(1) if there has been a determination of revised charges pursuant to clause 5I, the revised charges of the distributor for that year;*
> >
> > *(2) if there has been no such determination, the initial charges of a distributor for that year determined in accordance with clauses 5D and 5E; or*
> >
> > *(3) if there has been neither of the preceding determinations, the charges designed in accordance with clause 4.1(o), by the forecast quantities of the service category to which the charges relate for that year.*

7.6.3 Total Revenue requirement

Table 7.8 summarises the Total Revenue Requirement for the period 2012 – 2015 as derived from the 'building block approach.

Table 7.8 Total Revenue Requirement

($m, Real 2011)

	2012 (Forecast)	2013 (Forecast)	2014 (Forecast)	2015 (Forecast)	Total
Return on assets	20.01	24.20	21.72	19.17	**85.10**
Regulatory depreciation	43.41	53.00	45.53	44.75	**186.69**
Operating & Maintenance	48.55	40.15	26.44	24.35	**139.49**
Net 2009-11 Under Recovery	19.06	-	-	-	**19.06**
Total Revenue	**131.02**	**117.34**	**93.69**	**88.28**	**430.33**

7.7 Price controls

7.7.1 Introduction

At the time of lodging the initial AMI budget period applications, the Amending Order was silent on the matter of price controls other than the requirement of clause 4.1(o) that:

> *'charges…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 …'*

which was qualified by clause 4.1(p) to the extent that a distributor could propose 'Reduced Charges' for a year with the effect that a distributor may not recover the NPV of total costs incurred in that year. In its Draft Determination on the 2009-2011 Budget and Initial Charges Applications, the AER states on page 143 that:

> *'The AER would only adjust charges where the NPV of revenue was found to exceed the NPV of costs.'*

An amendment[38] to the Amending Order introduced clause 11B. 'Side Constraints" which has the effect of requiring clause 6.18.6 of the NERs to be applied to AMI tariffs subject to modification to the rule as set out in clause 11B of the Amending Order.

7.7.2 Pricing principles

The Commission in December 2007 proposed the application of a set of pricing principles for cost of service provision, cost allocation, cost differentials and simplicity.

In the Framework and Approach Final Decision, the AER confirmed its view that:

> *'…the pricing principles…are consistent with the revised Order. Distributors are required to consider them when setting charges, and charges may be reviewed for compliance with these principles.'*[39]

SP AusNet notes the Regulator's view and considers that the charges proposed for Regulated Services under this Application are consistent with the principles.

7.7.3 Rebalancing constraints

As noted above, clause 11B of the Amending Order now sets out the requirements for the application of side constraints to AMI tariffs. In part, clause 11B requires:

> *"(b) The expected weighted average revenue to be raised from a tariff class for a particular regulatory year must not exceed the corresponding expected weighted average revenue for the preceding regulatory year by more than the permissible percentage.";*

where the permissible percentage is defined under clause 6.18.6 of the NERs as:

'(c) The permissible percentage is the greater of the following:

> *(1) the CPI-X limitation on any increase in the Distribution Network Service Provider's expected weighted average revenue between the two regulatory years plus 2%;*

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38 Victorian Government Gazette G42, ***'Advanced Metering Infrastructure Order in Council 2010'***, 21 October 2010, page 2570.

39 AER, ***'Final decision - Framework and approach paper – Advanced metering infrastructure review 2009-11'***, January 2009, page 68.

Note:

The calculation is of the form (1 + CPI)(1 – X)(1 + 2%)

(2) CPI plus 2%.

Note:

The calculation is of the form (1 + CPI)(1 + 2%)'

Clause 11B of the Amending Order further provides:

> *(c) "corresponding expected weighted average revenue" as used in paragraph (b) (as substituted by this clause) of the rule is taken to include the expected weighted average revenue from the class or classes of customers who are at the start of a particular regulatory year, or during that regulatory year become, subject to a particular AMI tariff or particular AMI tariffs but who were, before the installation of advanced metering infrastructure, subject to a particular tariff that was not an AMI tariff or particular tariffs that were not AMI tariffs;*
>
> *(d) the preceding regulatory year referred to in paragraph (b) (as substituted by this clause) of the rule may be a regulatory year in a preceding regulatory control period; and*
>
> *(e) tariff class as used in paragraph (b) (as substituted by this clause) of the rule is taken to include the class or classes of customers who are at the start of a particular regulatory year, or during that regulatory year become, subject to a particular AMI tariff or particular AMI tariffs.*

SP AusNet notes the requirements of clause 11B and considers that the charges proposed for Regulated Services under this Application are consistent with the requirements

7.7.4 Tariff reassignment

The 2006-10 EDPR provides, where a distributor installs an interval meter at a customer's premises, the distributor is entitled to reassign customers who consume less than 20MWh of electricity per annum to a time of use (TOU) network tariff, but only where the distributor has provided the customer with the notification as required by the AER. In March 2009, the AER published its Draft Decision on interval meter reassignment[40]. The Victorian distributors, including SP AusNet, have provided a response[41] generally supporting this Draft Decision.

From 22 March 2010, the Victorian Government requested a moratorium on the mandatory assignment of time of use tariffs. The moratorium was issued to 'protect' vulnerable Victorians and ensure all impacted consumers fully understood the pricing structure prior to introducing new tariffs.

The Moratorium and the AMI Program in general has received a large amount of media focus which has led to adverse reactions from consumer groups. For SP AusNet, this consumer reaction has led to additional costs to the AMI Program in the form of effort associated with the management of customer queries, liaisons with industry/government groups and has impacted its ability to efficiently install AMI meters and hence eliminate whole meter reading routes.

7.7.5 Price Drivers

As detailed in SP AusNet's response to AER questions – AMI Initial Budget Application 2009-2011 (June 2009), SP AusNet believes that the two element meter is an appropriate tool to be used to deliver Regulated Metering Services in accordance with the metrology and minimum functionality requirements. This response detailed numerous benefits to customers, retailers and

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40 AER, ***'Interval Meter Reassignment Requirements Draft Decision'***, 13 March 2009.

41 Letter on behalf of Victorian Distributors dated 9 April, 2009.

distributors of two element meters as well as the cost implications of not installing two element meters. SP AusNet still believes these benefits justify the rollout of two element meters.

In particular, we draw attention to SP AusNet's stated belief that our approach to two element time of use tariffs will avoid 'price shock' to both the customer and the retailer and avoid additional costs associated with managing customer queries in relation to the timing of meter exchange communications and an increased number of billing enquiries.

In light of the recent media attention and negative publicity regarding increases in the cost of electricity for customers, SP AusNet believes this further ratifies our decision to install two element meters.

7.8 Regulated Services charges

Clause 5E.1 of the Amending Order requires that initial charges for Regulated Services for the period 2012-2015 must be determined in accordance with clause 4 and clause 5E.

7.8.1 2011 Charges

SP AusNet's Regulated Services charges for 2011 are set out in Table 7.9 below.

Table 7.9 Current Metering Charges

($2011, GST exclusive)

Annual metering charge	2011
Single phase, single element	$93.83
Single phase, two element with contactor	$107.81
Multi phase	$130.25
Multi phase, with contactor	$144.49
Multi phase Current Transformer connected	$186.05

7.8.2 Explanation of change in charges

As stated in section 7.6.2 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 SP AusNet 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 SP AusNet is proposing in this submission the following price changes or x-factor:

SP AusNet's proposed price movements for the period 2012-2015 are set out in Table 7.10 and Table 7.11 below.

Table 7.10 Real Price Movements 2012-2015

	2012	2013	2014	2015
Price Movement / X-factor	-14.84%	-14.84%	-14.84%	-14.84%

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

Table 7.11 Nominal Price Movements 2012-2015

	2012	2013	2014	2015
Price Movement / X-factor	-17.78%	-17.78%	-17.78%	-17.78%

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

7.8.3 Charges (2012-2015)

The note to clause 4.1 of the Amending Order summarises the approach to setting charges to apply to the years 2012-2015 as being based on actual expenditures and revenues known to 2010, revised forecasts for 2011 and an Approved Budget for 2012-2015.

SP AusNet's proposed subsequent Regulated Services charges for the period 2012-2015 are set out in Table 7.12 and 7.13 below.

Table 7.12 Regulated Services Charges

($Nominal, GST exclusive)

Annual metering charge	Forecast customer numbers at end of 2011	2012 (Forecast)	2013 (Forecast)	2014 (Forecast)	2015 (Forecast)
Single phase, single element	260,946	$110.51	$130.17	$153.31	$180.57
Single phase, two element with contactor	293,652	$126.98	$149.56	$176.15	$207.48
Multi phase	77,645	$153.41	$180.69	$212.82	$250.66
Multi phase, with contactor	43,119	$170.18	$200.44	$236.08	$278.06
Multi phase current transformer connected	3,767	$219.13	$258.10	$303.99	$358.04

Table 7.13 Regulated Services Charges

($2011, GST exclusive)

Annual metering charge	Forecast customer numbers at end of 2011	2012 (Forecast)	2013 (Forecast)	2014 (Forecast)	2015 (Forecast)
Single phase, single element	260,946	$107.76	$123.75	$142.11	$163.21
Single phase, two element with contactor	293,652	$123.81	$142.19	$163.29	$ 187.52
Multi phase	77,645	$149.58	$171.78	$197.28	$226.55
Multi phase, with contactor	43,119	$165.93	$190.56	$218.84	$251.32
Multi phase current transformer connected	3,767	$ 213.66	$245.37	$281.79	$323.61